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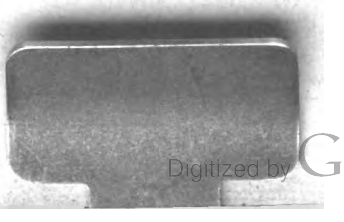
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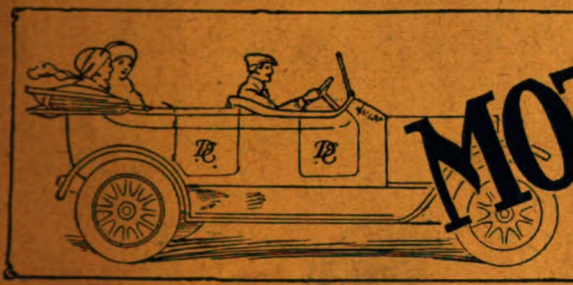
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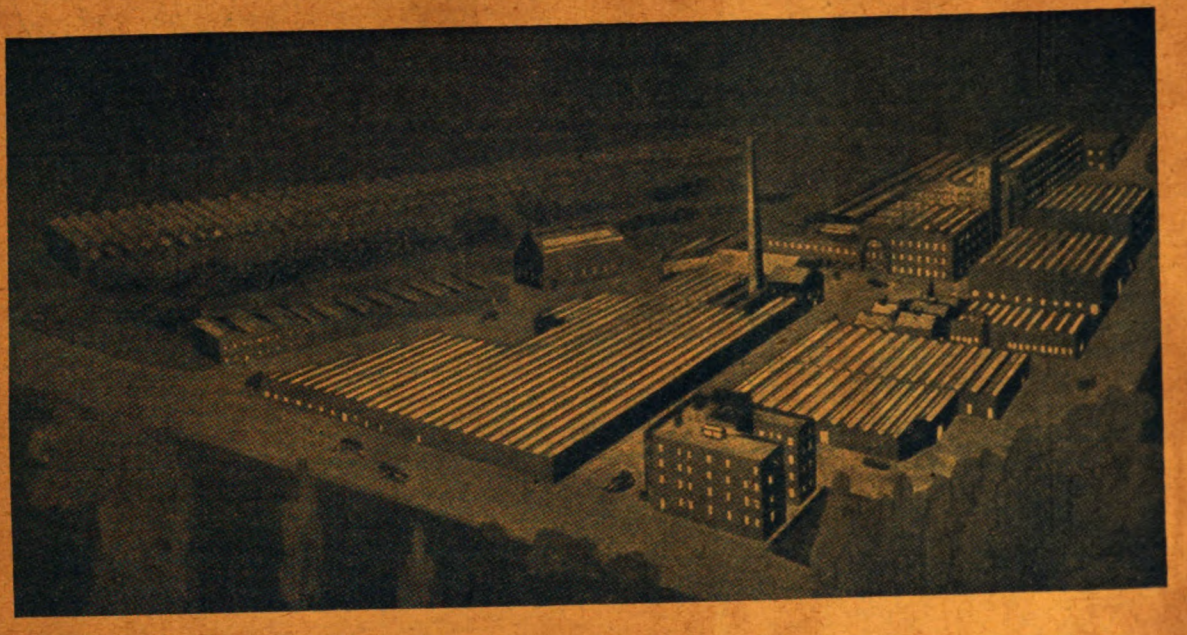
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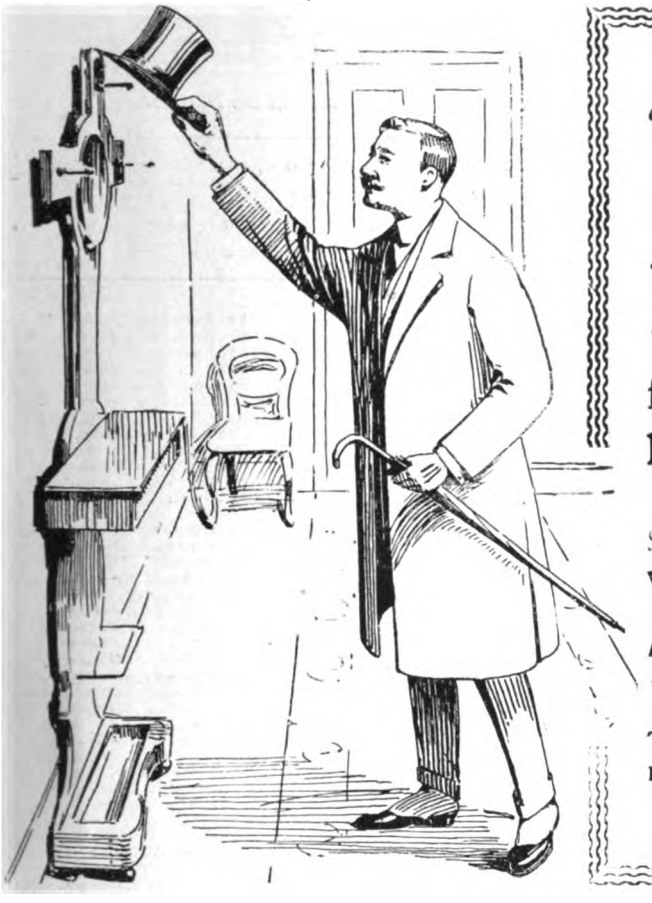
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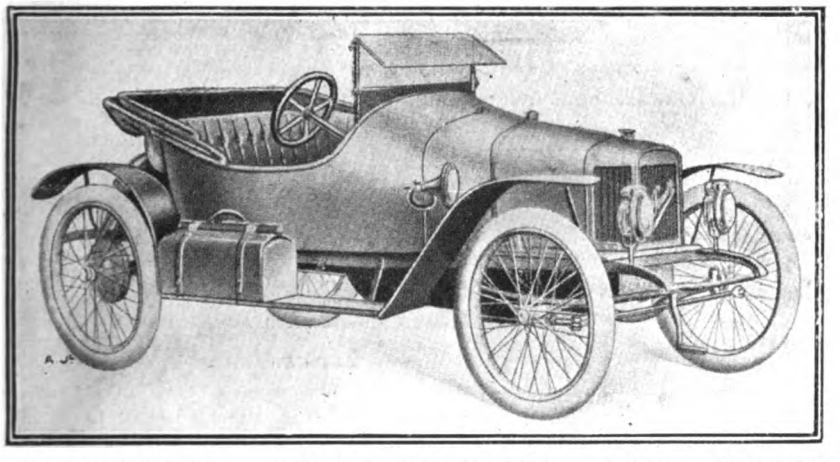
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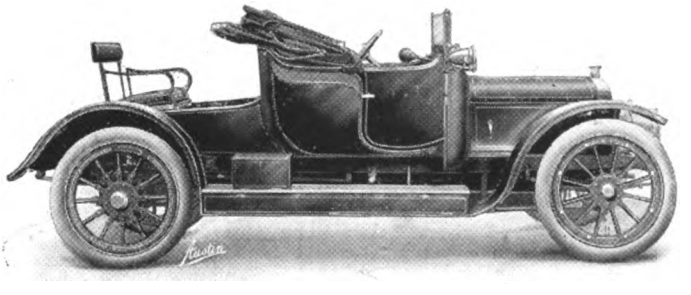
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Small corrections can be accepted up to 6 p.m. on Tuesday.
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Passing Events

The Grand Prix.

Quite naturally the first thing to be done in discussing the race for the Grand Prix is to congratulate the Sunbeam firm and their plucky drivers on the magnificent performance they achieved against the pick of the world's cars. It was a really wonderful feat to come home as they did in the first three places for the Coupe de *l'Auto*, and with only two of the big "unlimited" cars in front of them for the Grand Prix itself. Apart from the personal triumph for Mr. Coatalen and his colleagues, it was a triumph for the British car, and one which will unquestionably do a lot to enhance the confidence of the world at large in the merits of the British production.

It is but quite recently that our continental friends ceased to refuse to regard the British automobile constructor at all seriously. For long enough we were twitted with a want of enterprise, and were told that we lagged years behind in design. That phase, however, has passed away and the most prejudiced of our friendly rivals has had to admit that we had at least overtaken the rest of the world in the matter both of design and construction of the car of everyday use. But while they conceded to us that we had at last learnt how to build a car of the family 'bus type, they would never have it that we were capable of turning out anything that could meet their own productions on even terms in the stress of a great road race. Truth to tell, British performances in the few races in which our constructors have taken part gave some amount of colour to this idea. But what had been forgotten was that road-racing never had a considerable vogue over here and our people preferred to get there by a less strenuous route than that of the road race. And got there they have beyond a doubt, as the Sunbeam team have conclusively proved in what was probably one of the most severe tests to which motor vehicles have ever been subjected.

Whatever opinions may be as to the precise value of racing, so far as its bearing on development is concerned, there can be no question about the merit of the win, or the marvellous demonstration of efficiency it affords. Here are three cars of 15·9 rating, practically standard in all their characteristics which not only stood up to nearly a thousand miles of all-out running but actually averaged between them over sixty-three miles an hour. As a matter of fact, two averaged over sixty-five, the figure dropping on the team performance by reason of the third car's average being a little under sixty miles an hour. When it comes to be noted that the winner of the Grand Prix was only a bare three miles an hour faster, while the second car, with a motor which we understand was capable of developing nearly 300 h.p. was but a mere three quarters of a mile per hour faster than the first and second Sunbeams—well, it is just to be marvelled at.

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The Material Value of the Race.

We have at times expressed opinions adverse to the racing on the road of specially built "freak" cars, because the day has gone by when such races had any informative value, either as affecting the development of the motor vehicle itself or to the public from which the purchaser of the car is drawn. Those opinions we still hold, but of necessity they do not apply to races in which the cars competing are standard, or nearly standard, vehicles such as the majority of those which ran in the race for the Coupe de *l'Auto*. Where these vehicles are concerned racing has a high value, even at this comparatively late stage of development. We use the term late stage of development because, although it is impossible to argue that finality has been reached

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even in the main essentials of design, we have apparently reached something like fixity of type. It is quite possible that in the years to come fresh discoveries in engineering science may be made which will alter the whole root design of the car as we know it now, but in the light of the knowledge of to-day that hardly seems possible. However, we must never lose sight of the fact that the same remark would have been equally in order ten years ago and yet how great progress has been made in the intervening decade.

Having discarded, then, the idea that racing or trials can any longer operate to the change of type, we come to the question of what exactly is to be learnt from it? And how can it work to the improvement of the car, which is mechanically one of the most perfect products of engineering science? The answer to this is that the racing of these small vehicles, whose case we are considering, must have a profound effect on detail. If we could analyse the causes which led to the retirement of those cars which fell out by the wayside, it would be found that the great majority failed because of some defect in the minor details of their construction—not through the wholesale failures which characterised the casualties in the races of earlier times. The big things have been improved to relative perfection through the experience gained in races of a bygone time, and what we are now after is improvement and refinement of the smaller details. To this end the lessons of last week's race must be of immeasurable value to the designers and builders of the unsuccessful cars, and hardly less so to those whose vehicles came safely through the ordeal of nearly a thousand miles of high speed work on give and take roads.

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A Demonstration of Relative Efficiency.

Another very valuable object lesson conveyed by the result of the race is that of the relative efficiencies of the large and small cars. It has effectively demonstrated the lesson that has so often been urged that to attain to high average speeds it is not at all necessary to fly to the motor of enormous cylinder capacity. True, by installing a big motor in a racing chassis it is possible to work up to extremely high speeds, but only at an expense which ultimately proves to be too great. Turning to the table of circuit times which we publish on another page, it will be seen that some of the big cars completed circuits in phenomenal time, but in the result the average speed of the winning car in the Grand Prix was a mere three miles an hour faster than that of the two leading Sunbeams. The difference is simply accounted for by the fact that the big cars, while capable of enormous speeds for a short time used up tyres so fast that they lost time in changing to such an extent as to bring their average closely back to that of the smaller, lighter vehicles. The race stands out vividly in its result as a triumphant vindication of the small, efficient motor in a light chassis as compared with the enormous freak cars which the Grand Prix regulations have encouraged. For this most convincing object-lesson we have to thank our enterprising Parisian contemporary and namesake, *L'Auto*, to whose prescience we owe the race and the regulations under which it is run for encouraging the development of the standard touring article.

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The A.A.-M.U. and its Affairs.

At the annual general meeting of the A.A. and M.U. on Monday afternoon the chairman, Mr. Joynson-Hicks, was able to give the few members assembled a very flattering account of the year's working of the Association and of its plans for the future. To begin with, he was able to tell them that they had added some 15,000 members to the roll during the year and that the numerical strength of the Association to date was no less than 48,620, while the rate of increase was more than maintained. As a matter of fact, the number enrolled during the month of June was 2,786—which is a decidedly healthy figure and one upon which we hasten to congratulate the A.A. and its committee.

It is a characteristic of the A.A. that it never stands still—it is always developing in fresh directions and seeking to give its members more and better service for their money. The latest phase of its activity, as foreshadowed in the Chairman's speech is quite an important one and one which must vastly enhance the value of the Association's patrol system, already of immense utility to the touring motorist. This development is in the installation of a roadside telephone service on all the important main roads of the country. As is well known to those who use the roads to any extent, the Association has already erected at various points sentry boxes for the use of the patrols and the immediate programme is to erect similar boxes at intervals of ten miles or so on the main roads. Each box is to be fitted with a telephone connected with the nearest exchange, the use of the telephones to be free to members, except in the case of trunk calls. The utility of the scheme scarcely needs pointing out. Not only will such a service be of immense benefit in case of accident or breakdown, but it will have many and diverse uses which will readily suggest themselves to the reader. We sincerely congratulate the Association on this still further manifestation of its "liveness" as a motorists' organisation.

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The A.A. and the Price of Petrol.

Naturally, Mr. Joynson-Hicks could not avoid touching upon what is probably at the moment the question upon which the attention of the motorist at large is most nearly concentrated—the price of petrol. Unfortunately, he was not able to hold out even a ray of hope of there being any material reduction in prices. Indeed, reading between the lines of his pronouncement, it was possible to see that the labours of the Conference, so far as they have gone, lead to the conclusion that if there is to be any alteration it will be upward rather than in the reverse direction. Obviously, he could not tell his hearers what had transpired at the Conference, but it was quite evident that there had been some plain speaking on both sides upon this price question, and that the

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Committee feels that in fighting the battle of the motorist in this matter it is, vulgarly speaking, "up against it." However, Mr. Joynson-Hicks was able to assure the meeting that the motoring organisations are doing their very best for their members, and with that statement we must perforce be, for the moment, content.

We regret that we cannot find any reason to disagree with what Mr. Joynson-Hicks told his audience. The more the question is studied the more apparent become the huge difficulties which stand in the way of applying any of the remedies which have been suggested—indeed, so great are the difficulties that we fear they are almost insuperable. All we can do is to exercise what patience may be given to us and hope that the work of the Conference may result, after all, in the evolution of some way out of the present position.

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Changing Traffic.

There was one part of Mr. Joynson-Hicks' speech which is well worth the attention of all who have any interest in the manifold problems of our traffic. Touching upon the outcry which is being made in certain of the newspapers with regard to the increasing number of street accidents, Mr. Hicks gave some very interesting figures relative to the increase in the number of mechanically propelled vehicles in London during the past decade. Those, however, have been so often dealt with that it is not necessary to tabulate them here and now. The main point, however, which the speaker made was the one we put in these columns a fortnight ago when dealing with the self-same subject. Traffic, he pointed out, is undergoing an entire change—a revolution, he might have said—and the pedestrian as well as the wheeled traffic must realise this and adapt himself to the altered conditions. Precisely. We need not say that we are in entire agreement with Mr. Joynson-Hicks on this most essential point, for we have, as is already noted, advanced the same proposition in advance. But it is just as well that the chairman of the A.A. should have put the point in the way he did, for with all the weight of official authority behind it—the authority to speak from the motorists' point of view, that is—it must produce a good deal of effect on the minds of those with traffic interests. It is not, we are perfectly certain, realised to what an enormous extent the conditions of London traffic *have* changed. It is all very well to point out that while there are practically no horse cabs left, there are seven thousand motor cabs plying for hire within the metropolitan radius; that there are two thousand motor 'buses in commission; and that over fifty thousand horses have disappeared from the streets. Even those figures, stupendous as they are, do not properly convey to the detached mind the utter change that has come over the conditions. Therefore, the pedestrian who has seen the change come about gradually resents it but scarcely knows why. It has not come home to him that he alone of all the elements of street traffic has not done anything to adapt himself or his methods of using the streets to the altered conditions.

The Standardisation of Road Materials.

The Engineering Standards Committee has taken up, with the assistance of a monetary grant from the Road Board, the question of the standardisation of road materials. To that end a meeting was held recently, under the presidency of Sir John Wolfe Barry, of representatives of the Road Board, the War Office, the Local Government Board, and other authorities, and including the R.A.C. and A.A., to consider, first, whether standardisation of road materials is desirable, and, the question being answered affirmatively, to what extent the subject should receive attention. The synopsis of the discussion includes such matters as the nomenclature, grading and qualities of road-stones, gravels and sands and the tests to be applied to them; tars, pitches, and bitumens, their chemical and physical qualities and their tests; the standards of weight and capacity, and other correlative matters. All that was done at the meeting, which was quite a preliminary affair, was to affirm the necessity of standardisation, and to recommend the main committee to constitute the delegates present into a sectional committee to consider the whole subject.

We can foresee a great deal of work in store for this committee—work which cannot but have a most beneficent influence upon the future of road construction. The subject it has taken in hand to discuss is one which, speaking without much technical knowledge of the matter, we should say has been very much neglected in the past. But, as a matter of fact, it is a truism that the whole art and science of road construction has remained stagnant for many years, until the coming of the motor vehicle and the consequent return of a large volume of traffic to the highways began to call attention to the hopeless state of chaos into which it had fallen. We have made enormous strides of late, but then so much has been neglected in the past that we have not nearly overtaken the necessities of the present, let alone those of the future.

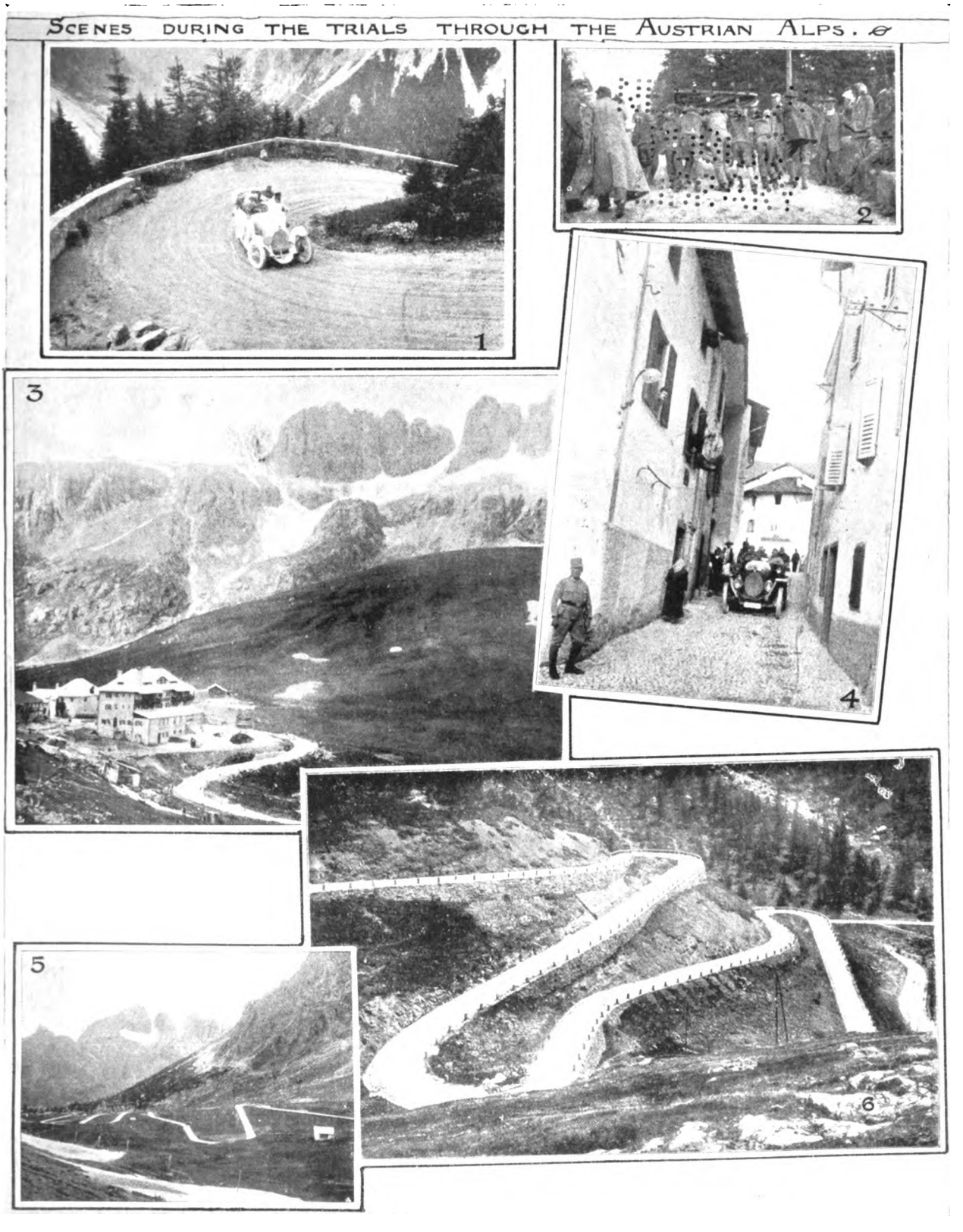
We take it that there will not be a great deal of difficulty in arriving at decisions on the main questions before the committee, especially as they will have the benefit of the experience and advice of representatives of quarry owners who are sitting as members. The difficulties will arise when, the committee having determined upon what are the proper standards, it becomes a question of getting road authorities who have to do the paying to agree to the standard materials. Possibly we are a little pessimistic in this respect, but we know of so many authorities who are loth to expend those extra few pence per yard of material which spells all the difference between good material and bad, that we fancy it will be here that the shoe will pinch. However, we can only hope that the general educative work which is being done, supplemented by the efforts of the Standardisation Committee, will bear good fruit.

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For the Best Hotels, see "Auto." Guide every week.
For Sunday Golf, see "Auto." Guide every week.
For Garages Open Sunday, see "Auto." Guide every week.

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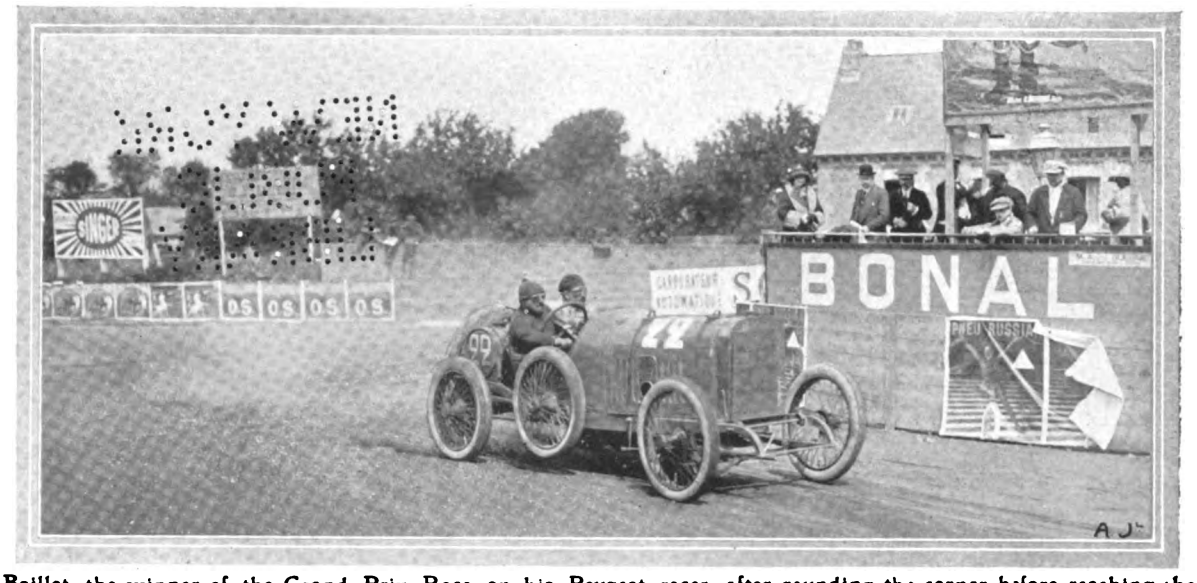
WITH THE CAMERA AND THE CAR.



1. On the Loiblpass; E. Fischer's Austro-Daimler car rounding the bend. 2. Helping a lame duck on the Katschberg. 3. The hostel on the Pordojjochs. 4. The N.A.G. Press car negotiating the narrow winding streets of Castell Tessino. 5. The higher hairpin corners on the Pordojjochs. 6. The last of the hairpin corners on the Pordojjochs.

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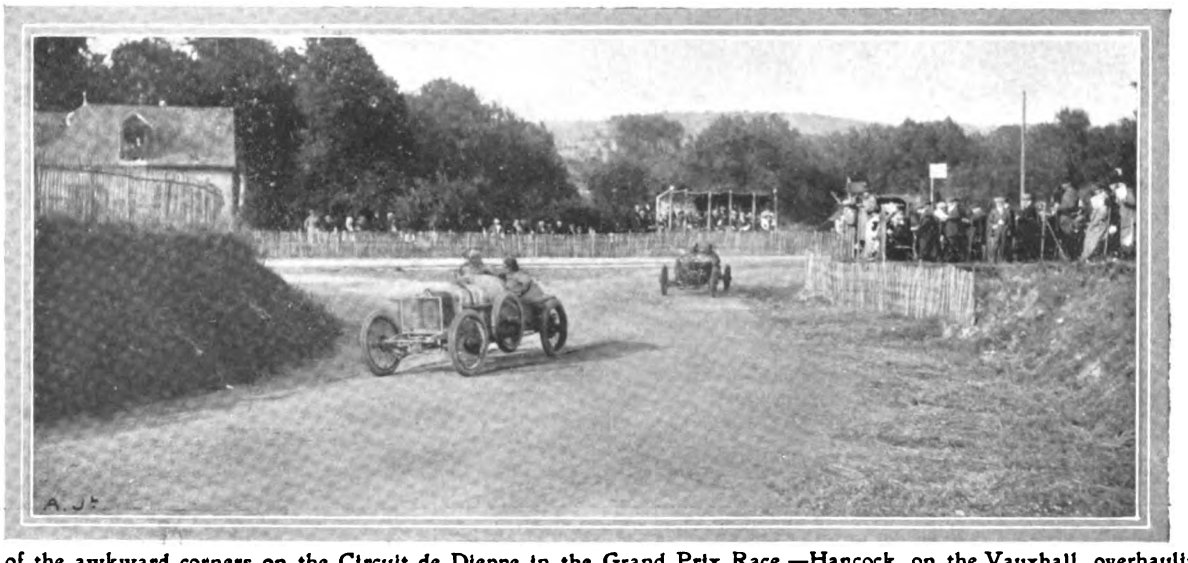
GRAND PRIX AND COUPE DE L'AUTO RACE.



Boillot, the winner of the Grand Prix Race, on his Peugeot racer, after rounding the corner before reaching the Grand Stands.

THE story of a motor car race is generally told most eloquently in the table of lap times, by means of which it is possible to appreciate the changing of positions of the leaders from stage to stage. Following our usual practice, we therefore publish, this week, the cumulative lap times of all the cars which started. Of the forty-six sent off, which included thirty-three in the Coupe de *l'Auto* (3-litre) class, all finished the first round. The second circuit saw four disappear, and thereafter one or two dropped out each lap, until at the end of the day there were only twenty-six left to fight. As will be seen from our tables, Bruce-Brown on his Fiat led all the way on the first day, although Boillot on the Peugeot kept very close up, in the second round, for instance, being only thirteen seconds behind. From the first Bruce-Brown set the pace, and his first lap of 37 mins. 18 secs. was the second fastest of the day, while the fastest time in the whole race, 36 mins. 32 secs., was made by him in the eighth lap. He was also fastest on the third and fourth round. On the second round, Boillot took the time honours, as also in the fifth, seventh, ninth, and tenth laps, while Wagner was best on the sixth circuit. On three rounds the British small cars which ran so triumphantly in this race made second best time; Resta on the Sunbeam being in that position on eighth lap, Rigal on another Sunbeam in the ninth lap, and Hancock on a Vauxhall in the tenth. Bruce-Brown's lowest circuit was the seventh, when he was sixteenth in order of time, in 49 mins. 7 secs., but he made up for this delay in the next round. Wagner was second fastest on the third, fourth, and seventh round, Boillot on the first, Goux on the second, and Christiaens on the fifth.

No doubt largely due to the effect of the rain on the roads, the best lap times on the second day were about



One of the awkward corners on the Circuit de Dieppe in the Grand Prix Race.—Hancock, on the Vauxhall, overhauling Duray, on an Alcyon car.

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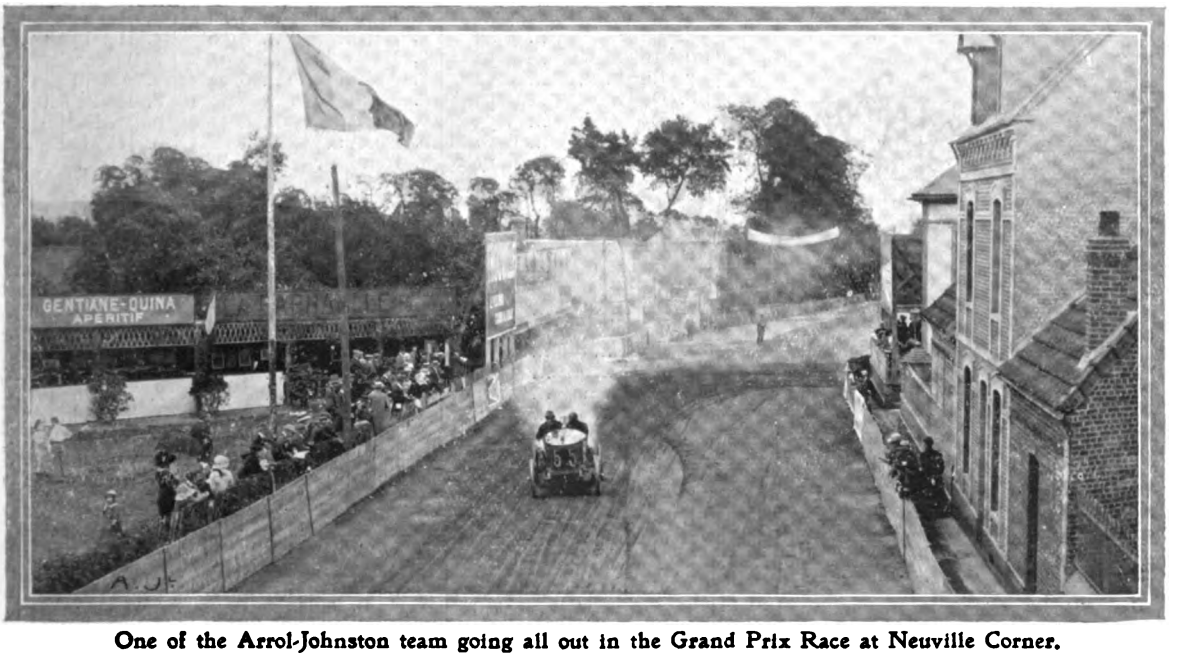
The team of victorious Sunbeam cars at the Grand Prix Circuit Race.

two minutes slower, while all the cars started off at a comparatively slow pace. Wagner was quickest on the first round, in 45 mins. 12 secs., and he also occupied a similar position on the fifteenth, sixteenth, and twentieth circuits. Bruce-Brown was second fastest on the first lap, and he maintained his overnight lead up to the fourteenth lap when he was displaced by Boillot, who having got in front kept ahead to the end of the race. Boillot made best time on the twelfth, fourteenth, and nineteenth laps, while Bruce-Brown had the honours in the seventeenth and eighteenth rounds, his seventeenth lap of 37 mins. 33 secs. being the fastest of the day. He was second on the eleventh, thirteenth, and nineteenth laps. Wagner made second on the twelfth and seventeenth, Rigal on the fourteenth and eighteenth, and Boillot on fifteenth, sixteenth, and twentieth. Wagner's time for the last lap was 41 mins. 5 secs., and Boillot's, 41 mins. 9 secs.

The best times for the Coupe de *l'Auto* race were made during the first day, Hancock's on the tenth round being 38 mins. 14 secs., and Rigal's, on the ninth, 38 mins. 18 secs. Of the fourteen cars which completed the race, including Bruce-Brown's Fiat, which finished third, but was disqualified for taking on petrol *en route*, eight were small cars competing for the Coupe de *l'Auto*, while one—the German Mathis—was small enough but ineligible, as it did not comply with the weight regulations.

The Coupe de "L'Auto" Race.

IT is somewhat unfortunate that the Grand Prix and Coupe de *l'Auto* races were run concurrently, as although the small cars performed so splendidly, yet their relatively better performances were more or less completely overshadowed by the presence of the big cars. The result of the Coupe de *l'Auto* was a magnificent triumph for the



One of the Arrol-Johnston team going all out in the Grand Prix Race at Neuville Corner.

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GRAND PRIX AND COUPE DE "L'AUTO" RACES. The Cumulative Lap Times.

FIRST DAY (10 LAPS).

1st Lap (77 kiloms.).	h. m. s.
1. Bruce-Brown (Fiat, 37)	0 37 18
2. Boillot (Peugeot, 22)	0 38 40
3. Hémery (Lor-Dietrich, 11)	0 39 0
4. Goux (Peugeot, 13)	0 40 16
5. Heim (Lor-Dietrich, 57)	0 40 26
6. Christiaens (Excelsior, 50)	0 40 47
7. Wagner (Fiat, 23)	0 41 15
8. De Palma (Fiat, 42)	0 41 29
9. Rigal (Sunbeam, 3)*	0 42 10
10. Resta (Sunbeam, 17)*	0 42 16
11. Watson (Vauxhall, 54)*	0 42 57
12. Médinger (Sunbeam, 52)*	0 43 23
13. Hanriot (Lor-Dietrich, 34)	0 44 21
14. Caillois (Sunbeam, 16)*	0 44 28
15. Hancock (Vauxhall, 51)*	0 45 8
16. Colinet (Gregoire, 10)*	0 45 17
17. Bablot (Lor-Dietrich, 31)	0 45 59
18. Rollason (Singer, 25)*	0 46 50
19. Anford (Roll. Pilain, 30)	0 46 58
20. Garcet (Calthorpe, 14)*	0 47 27
21. De Marne (Gregoire, 18)*	0 47 56
22. Champoiseau (Schneider, 9)*	0 48 0
23. Zuccarelli (L-Peugeot, 45)*	0 48 1
24. Barriaux (Alcyon, 4)*	0 48 18
25. Duray (Alcyon, 40)*	0 48 21
26. Romano (Gregoire, 24)*	0 48 26
27. Page (Alcyon, 27)*	0 48 42
28. Sizaire (Sizaire, N 7)*	0 48 52
29. Haywood (Singer, 39)*	0 49 18
30. Léon Molon (Vinot, 8)*	0 49 37
31. Thomas (Lion-Peugeot, 47)*	0 49 55
32. Lucien Molon (Vinot, 56)*	0 50 4
33. Renaux (Gregoire, 21)*	0 51 0
34. Hornsted (Calthorpe, 26)*	0 51 34
35. Croquet (Schneider, 20)*	0 51 36
36. Vonlatum (Vinot, 32)*	0 51 43
37. Lambert (Vauxhall, 33)*	0 52 21
38. Schweitzer (Sizaire, N 38)*	0 52 45
39. Wyse (Arrol-Johnston, 36)*	0 54 5
40. De Vere (Cote, 29)*	0 56 15
41. Reid (Arrol-Johnston, 28)*	0 57 1
42. Esser (Mathis, 12)	0 58 16
43. Crossmann (Arrol-J., 55)*	0 58 45
44. Gabriel (Cote, 41)*	1 0 0
45. Naudin (Sizaire, N 19)*	1 5 33
46. Guyot (Roll. Pilain, 49)	1 22 51

2nd Lap (154 kiloms.).	h. m. s.
1. Bruce-Brown	1 16 19
2. Boillot	1 16 32
3. Goux	1 18 49
4. Wagner	1 19 49
5. Christiaens	1 21 21
6. De Palma	1 23 11
7. Resta	1 24 5
8. Hanriot	1 25 33
9. Watson	1 26 20
10. Rigal	1 27 32
11. Hancock	1 27 47
12. Médinger	1 29 48
13. Bablot	1 29 51
14. Caillois	1 29 51
15. Anford	1 30 9
16. Colinet	1 33 10
17. Rollason	1 33 22
18. De Marne	1 34 28
19. Barriaux	1 34 51
20. Garcet	1 35 12
21. Duray	1 35 45
22. Champoiseau	1 36 14
23. Page	1 36 27
24. Romano	1 36 31
25. Sizaire	1 36 49
26. Thomas	1 38 2
27. Léon Molon	1 38 13
28. Lucien Molon	1 38 17
29. Zuccarelli	1 38 34
30. Renaux	1 39 24
31. Lambert	1 40 33
32. Haywood	1 40 54
33. Hornsted	1 41 35
34. Vonlatum	1 42 38
35. Croquet	1 43 18
36. Schweitzer	1 44 30
37. Wyse	1 46 7
38. Reid	1 49 1
39. Naudin	1 53 27
40. Esser	1 55 18
41. Crossmann	1 55 18
42. De Vere	1 57 0

3rd Lap (231 kiloms.).	h. m. s.
1. Bruce-Brown	1 54 44
2. Boillot	1 57 40
3. Wagner	1 58 53
4. De Palma	2 6 7
5. Resta	2 6 52
6. Hanriot	2 6 56
7. Hancock	2 10 14
8. Bablot	2 10 40
9. Rigal	2 10 41
10. Anford	2 13 2
11. Médinger	2 13 5
12. Caillois	2 15 32
13. Zuccarelli	2 18 50
14. Christiaens	2 20 7
15. Rollason	2 20 41
16. De Marne	2 21 21
17. Duray	2 21 51
18. Thomas	2 21 55
19. Barriaux	2 22 11
20. Garcet	2 22 53
21. Romano	2 23 52
22. Page	2 24 21
23. Sizaire	2 25 13
24. Champoiseau	2 25 42
25. Lucien Molon	2 26 26
26. Léon Molon	2 27 25
27. Lambert	2 27 52
28. Renaux	2 28 19
29. Haywood	2 29 49
30. Vonlatum	2 33 10
31. Hornsted	2 33 39
32. Croquet	2 35 3
33. Wyse	2 38 4
34. Schweitzer	2 40 15
35. Reid	2 40 22
36. Naudin	2 41 20
37. De Vere	2 50 11
38. Esser	2 51 2
39. Crossmann	2 52 32
40. Goux	3 43 3

4th Lap (308 kiloms.).	h. m. s.
1. B.-Brown	2 32 48
2. Wagner	2 37 52
3. Boillot	2 42 9
4. Bablot	2 51 6
5. De Palma	2 51 12
6. Hancock	2 52 13
7. Hanriot	2 52 40
8. Rigal	2 53 21
9. Resta	2 53 55
10. Médinger	2 56 3
11. Anford	2 55 51
12. Zuccarelli	2 58 52
13. Caillois	2 59 1
14. Christiaens	3 5 10
15. Duray	3 7 14
16. Rollason	3 7 14
17. De Marne	3 7 40
18. Thomas	3 8 17
19. Barriaux	3 8 36
20. Garcet	3 10 52
21. Page	3 11 47
22. Sizaire	3 13 26
23. Champoiseau	3 13 43
24. Romano	3 16 44
25. Renaux	3 17 8
26. Haywood	3 17 23
27. Vonlatum	3 24 36
28. Hornsted	3 25 4
29. Croquet	3 26 29
30. Naudin	3 28 37
31. Reid	3 30 17
32. Wyse	3 30 35
33. Schweitzer	3 30 37
34. De Vere	3 49 55
35. Crossmann	3 51 35
36. Esser	3 56 14
37. Lu. Molon	4 0 51
38. Goux	4 27 16
39. Lambert	5 11 35

5th Lap (385 kiloms.).	h. m. s.
1. B.-Brown	3 14 54
2. Boillot	3 21 24
3. Wagner	3 22 2
4. Hancock	3 33 58
5. De Palma	3 35 39
6. Hanriot	3 37 28
7. Resta	3 37 53
8. Anford	3 39 10
9. Rigal	3 39 27
10. Médinger	3 39 28
11. Caillois	3 42 16
12. Christiaens	3 47 6
13. Bablot	3 48 24
14. Duray	3 54 2
15. Barriaux	3 55 26
16. Rollason	3 56 17
17. Thomas	3 56 45
18. Zuccarelli	3 57 29
19. Page	3 58 55
20. Garcet	3 58 59
21. Romano	4 4 21
22. De Marne	4 4 21
23. Heywood	4 4 49
24. Renaux	4 6 15
25. Sizaire	4 7 2
26. Naudin	4 16 8
27. Hornsted	4 16 16
28. Vonlatum	4 17 29
29. Croquet	4 18 0
30. Schweitzer	4 21 52
31. Wyse	4 22 37
32. Reid	4 22 38
33. De Vere	4 47 34
34. Crossmann	4 50 2
35. Lu. Molon	4 51 21
36. Esser	4 52 48
37. Lambert	4 59 7
38. Goux	5 7 1

The names of cars and official numbers are given in brackets in the first column.

* Competing for the Coupe de *l'Auto*.

6th Lap (462 kiloms.).	h. m. s.
1. Bruce-Brown	3 54 31
2. Wagner	4 0 35
3. Boillot	4 1 47
4. Hancock	4 18 37
5. De Palma	4 19 13
6. Resta	4 19 16
7. Anford	4 25 10
8. Médinger	4 25 34
9. Hanriot	4 25 59
10. Rigal	4 27 55
11. Caillois	4 29 1
12. Bablot	4 36 2
13. Duray	4 43 17
14. Barriaux	4 43 42
15. Thomas	4 47 11
16. Christiaens	4 47 46
17. Garcet	4 49 39
18. Sizaire	4 50 30
19. Romano	4 51 11
20. Page	4 52 35
21. Rollason	4 54 12
22. Renaux	4 55 1
23. Naudin	5 3 55
24. Croquet	5 9 26
25. Reid	5 14 14
26. Wyse	5 15 23
27. Schweitzer	5 16 50
28. Vonlatum	5 23 44
29. Lucien Molon	5 37 41
30. Zuccarelli	5 40 14
31. De Marne	5 42 45
32. De Vere	5 45 19
33. Esser	5 49 29
34. Goux	5 55 0
35. Crossmann	5 57 19
36. Lambert	6 46 13

7th Lap (539 kiloms.).	h. m. s.
1. Bruce-Brown	4 33 38
2. Wagner	4 40 17
3. Boillot	4 41 24
4. Hancock	5 1 26
5. Resta	5 4 47
6. Médinger	5 8 30
7. Anford	5 8 59
8. Rigal	5 10 27
9. De Palma	5 10 31
10. Hanriot	5 16 59
11. Duray	5 31 37
12. Thomas	5 33 32
13. Garcet	5 37 49
14. Romano	5 39 1
15. Sizaire	5 40 28
16. Caillois	5 40 38
17. Christiaens	5 46 33
18. Page	5 42 56
19. Renaux	5 43 50
20. Naudin	5 53 49
21. Bablot	6 2 9
22. Barriaux	6 2 52
23. Reid	6 6 0
24. Wyse	6 8 10
25. Zuccarelli	6 20 31
26. Vonlatum	6 24 1
27. De Marne	6 29 14
28. Lucien Molon	6 32 32
29. Croquet	6 35 0
30. Goux	6 36 13
31. Schweitzer	6 40 24
32. Esser	6 51 37
33. Crossmann	7 19 44
34. De Vere	7 23 20
35. Lambert	7 41 51

8th Lap (616 kiloms.).	h. m. s.
1. Bruce-Brown	5 10 10
2. Boillot	5 23 22
3. Wagner	5 38 18
4. Resta	5 46 5
5. Hancock	5 49 22
6. Anford	5 52 0
7. Rigal	5 52 20
8. De Palma	5 55 6
9. Médinger	5 55 48
10. Duray	6 16 26
11. Hanriot	6 17 39
12. Christiaens	6 29 25
13. Page	6 29 49
14. Garcet	6 30 24
15. Renaux	6 32 33
16. Romano	6 36 30
17. Sizaire	6 40 32
18. Barriaux	6 52 1
19. Croquet	6 55 3
20. Reid	6 58 0
21. Wyse	7 0 24
22. Vonlatum	7 19 16
23. Goux	7 24 51
24. De Marne	7 37 21
25. Schweitzer	7 37 43
26. Esser	7 50 8
27. Crossmann	8 16 25
28. De Vere	8 23 40
29. Lambert	8 29 48

9th Lap (693 kiloms.).	h. m. s.
1. Bruce-Brown	5 57 18
2. Boillot	6 1 3
3. Wagner	6 21 20
4. Resta	6 28 48
5. Rigal	6 30 38
6. Hancock	6 33 28
7. Anford	6 34 42
8. Médinger	6 39 18
9. De Palma	6 41 44
10. Duray	7 1 52
11. Hanriot	7 2 18
12. Garcet	7 20 32
13. Christiaens	7 21 16
14. Renaux	7 22 31
15. Page	7 22 33
16. Romano	7 24 13
17. Sizaire	7 28 57
18. Croquet	7 47 55
19. Reid	7 49 58
20. Wyse	7 57 2
21. Vonlatum	8 33 33
22. Goux	8 16 25
23. Schweitzer	8 35 59
24. Esser	8 52 56
25. Crossmann	9 17 34
26. De Vere	9 26 31
27. Lambert	9 30 10

10th Lap (770 kiloms.).	h. m. s.
1. Bruce-Brown	6 36 37
2. Boillot	6 38 40
3. Wagner	7 3 12
4. Resta	7 10 14
5. Rigal	7 14 22
6. Hancock	7 16 42
7. Anford	7 21 9
8. De Palma	7 24 24
9. Médinger	7 33 19
10. Hanriot	7 47 43
11. Garcet	8 9 9
12. Christiaens	8 10 22
13. Romano / Page	8 12 47
14. Renaux	8 17 51
15. Sizaire	8 24 7
16. Renaux	8 32 31
17. Duray	8 37 55
18. Croquet	8 42 9
19. Reid	8 57 52
20. Wyse	8 57 53
21. Goux	9 28 55
22. Vonlatum	9 39 30
23. Schweitzer	10 6 13
24. Esser	10 28 26
25. Crossmann	10 29 46
26. De Vere	

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SECOND DAY (10 LAPS).

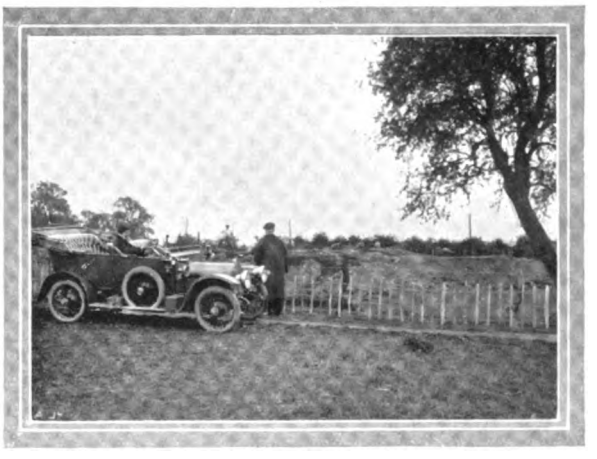
11th Lap (847 kiloms.).	h.	m.	s.	12th Lap (924 kiloms.).	h.	m.	s.	13th Lap (1,001 kiloms.).	h.	m.	s.	14th Lap (1,078 kiloms.).	h.	m.	s.	15 h Lap (1,155 kiloms.).	h.	m.	s.
1. Bruce-Brown	7	24	24	1. Bruce-Brown	8	7	53	1. Bruce-Brown	8	48	52	1. Boillot ...	9	28	59	1. Boillot ...	10	9	15
2. Boillot ...	7	30	58	2. Boillot ...	8	9	18	2. Boillot ...	8	49	3	2. Bruce-Brown	9	54	23	2. Wagner ...	10	40	44
3. Wagner ...	7	49	24	3. Wagner ...	8	31	5	3. Wagner ...	9	16	20	3. Wagner ...	10	1	18	3. Bruce-Brown	10	48	56
4. Resta ...	8	2	58	4. Resta ...	8	46	8	4. Resta ...	9	29	29	4. Resta ...	10	12	50	4. Resta ...	10	54	17
5. Rigal ...	8	13	53	5. Rigal ...	8	56	53	5. Rigal ...	9	40	27	5. Rigal ...	10	25	24	5. Rigal ...	11	5	58
6. Hancock ...	8	20	9	6. Médinger ...	9	36	5	6. Médinger ...	10	25	22	6. Médinger ...	11	11	14	6. Médinger ...	12	0	28
7. Médinger ...	8	44	40	7. Hancock ...	9	41	37	7. Hancock ...	10	38	13	7. Christiaens ...	11	31	13	7. Christiaens ...	12	16	9
8. Sizaire ..	9	8	36	8. Anford ...	9	54	48	8. Christiaens ...	10	39	30	8. Hancock ...	11	36	3	8. Sizaire ...	12	31	31
9. Anford ...	9	10	36	9. Christiaens ...	9	55	25	9. Sizaire ...	10	44	27	9. Sizaire ...	11	39	22	9. Page... ...	12	34	11
10. Christiaens ...	9	10	43	10. Sizaire ...	9	56	52	10. Page... ...	10	56	58	10. Page... ...	11	45	27	10. Hancock ...	12	39	47
11. Page... ...	9	18	37	11. Page... ...	10	7	53	11. Garcet ...	11	7	51	11. Garcet ...	12	4	43	11. Garcet ...	12	53	29
12. Garcet ...	9	27	51	12. Garcet ...	10	15	53	12. Duray ...	11	21	4	12. Duray ...	12	8	13	12. Duray ...	12	54	49
13. Croquet ...	9	34	34	13. Duray ...	10	33	59	13. Anford ...	11	27	20	13. Croquet ...	12	25	6	13. Croquet ...	13	15	49
14. Duray ...	9	47	2	14. Croquet ...	10	43	43	14. Croquet ...	11	34	4	14. Anford ...	12	27	3	14. Anford ...	13	17	30
15. Wyse ...	9	54	40	15. Wyse ...	10	46	39	15. Wyse ...	11	39	17	15. Reid	12	35	36	15. Reid... ...	13	27	25
16. Reid ...	9	57	59	16. Reid	10	51	6	16. Reid	11	43	29	16. Wyse ...	12	40	29	16. Wyse ...	13	33	11
17. Vonlatum ...	10	36	58	17. Lambert ...	11	30	30	17. Vonlatum ...	12	35	54	17. Vonlatum ...	13	32	47	17. Vonlatum ...	14	27	34
18. Lambert ...	10	42	32	18. Vonlatum ...	11	34	20	18. Lambert ...	12	56	36	18. Esser ...	14	19	19	18. Esser ...	15	19	39
19. Esser ...	11	17	48	19. Esser ...	12	19	1	19. Esser ...	13	18	31	19. Crossmann ...	14	52	22	19. Lambert ...	15	44	42
20. De Vere ...	11	36	8	20. Crossmann ...	12	47	0	20. De Vere ...	13	45	41	20. Lambert ...	14	52	53	20. Crossmann ...	15	54	58
21. Crossmann ...	11	47	4	21. De Vere ...	12	47	54	21. Crossmann ...	13	47	44	21. De Vere ...	15	2	46	21. De Vere ...	16	0	25

16th Lap (1,232 kiloms.).	h.	m.	s.	17th Lap (1,309 kiloms.).	h.	m.	s.	18th Lap (1,386 kiloms.).	h.	m.	s.	19th Lap (1,463 kiloms.).	h.	m.	s.	20th Lap (1,540 kiloms.).	h.	m.	s.
1. Boillot ...	10	48	35	1. Boillot ...	11	32	56	1. Boillot ...	12	38	19	1. Boillot ...	12	16	53	1. Boillot ...	13	58	2
2. Wagner ...	11	19	39	2. Wagner ...	12	1	19	2. Wagner ...	12	44	54	2. Wagner ...	13	30	3	2. Wagner ...	14	11	8
3. Resta ...	11	43	51	3. Bruce-Brown	12	24	8	3. Bruce-Brown	13	5	38	3. Bruce-Brown	13	45	11	† Bruce-Brown	14	28	13
4. Bruce-Brown	11	46	35	4. Resta ...	12	28	47	4. Resta ...	13	13	10	4. Resta ...	13	55	54	3. Rigal* ...	14	38	36
5. Rigal ...	11	49	0	5. Rigal ...	12	33	49	5. Rigal ...	13	15	25	5. Rigal ...	13	57	4	4. Resta* ...	14	39	51
6. Médinger ...	12	46	5	6. Médinger ...	13	32	58	6. Médinger ...	14	18	9	6. Médinger ...	15	9	32	5. Médinger* ...	15	59	41
7. Sizaire ...	13	20	30	7. Christiaens ...	14	6	53	7. Christiaens ...	14	52	1	7. Christiaens ...	15	37	17	6. Christiaens ...	16	23	38
8. Christiaens ...	13	21	16	8. Sizaire ...	14	7	53	8. Croquet ...	15	49	2	8. Croquet ...	16	41	29	7. Croquet* ...	17	31	39
9. Page... ...	13	29	19	9. Anford ..	14	51	5	9. Anford ..	15	54	32	9. Anford ...	16	53	33	8. Anford ...	17	49	32
10. Duray ...	13	48	33	10. Croquet ...	14	57	59	10. Wyse ...	16	12	37	10. Wyse ...	17	11	1	9. Wyse* ...	18	7	19
11. Anford ..	14	3	48	11. Duray ...	15	2	4	11. Duray ...	16	38	53	11. Duray ...	17	25	32	10. Duray* ...	18	28	55
12. Croquet ...	14	6	50	12. Reid	15	15	36	12. Vonlatum ...	17	19	57	12. Reid	18	12	56	11. Vonlatum* ...	19	6	0
13. Garcet ...	14	13	47	13. Wyse ...	15	20	9	13. Reid	17	6	6	13. Vonlatum ...	18	13	9	12. Esser ...	20	18	5
14. Reid... ...	14	19	14	14. Vonlatum ...	16	24	42	14. Esser ...	18	21	2	14. Esser ...	19	20	23	13. De Vere* ..	20	57	6
15. Wyse ...	14	25	14	15. Esser... ...	17	18	20	15. Lambert ...	18	24	7	15. De Vere ...	20	1	15				
16. Vonlatum ...	15	29	4	16. Lambert ...	17	20	0	16. De Vere ...		—									
17. Esser ...	16	19	42	17. De Vere ...	18	7	48												
18. Lambert ...	16	32	51	18. Crossmann ...	19	11	0												
19. De Vere ...	17	6	45																
20. Crossmann ...	17	50	15																

* Competing for Coupe de *l'Auto*.
† Finished third, but disqualified.

British industry, for of the eight cars that finished, four were British with the three Sunbeams, the only triplet to finish in the race, taking first, second, and third places, while an Arrol-Johnston was fifth. The Sunbeam team thus easily secured the Prix de Regularite. It is understood that the Schneider car, which finished fourth, was a standard chassis as the racing car could not be completed in time. The full times for this race were :—

	h.	m.	s.		h.	m.	s.
1. Rigal (Sunbeam)...	14	38	36	5. Wyse (Ar.-Johnston)	18	7	19
2. Resta (Sunbeam)	14	39	51	6. Duray (Alcyon) ...	18	28	55
3. Medinger (Sunbeam)	15	59	41	7. Vonlatum (Vinot)	19	6	0
4. Croquet (Schneider)	17	31	39	8. De Vere (Cote) ...	20	57	6



The old and the new, seen on a tour with a 12-16-h.p. Wolseley phaeton.—The photograph shows the excavations of a Roman villa at Wall, a little village near Lichfield, situated at the junction of the two great Roman roads, Watling Street and Icknield Street. The telegraph poles in the background show the line of Watling Street, but it has here degenerated into a quiet country by-road. A considerable portion of the foundations of a Roman villa have been unearthed, and a barbed wire fence, shown in the photograph, has had to be erected owing to the damage done to the excavations by the villagers, who seem to believe that the diggers are searching for buried treasures.

Accessories in the Grand Prix Races.

In an event of this type, while giving full credit to the makers of the winning cars, it should not be overlooked that without the necessary qualities in the various accessories which count, a different tale might be told, their selection being, of course, part of the fine judgment which goes to make up the whole. The winning Continental-tyred Peugeot was fitted with Rudge-Whitworth wheels, and the Sunbeams with Goodyear detachable wheels, while both the Peugeot and Sunbeam cars had Claudel-Hobson carburettors and Bosch magnetos working in connection with Oleo plugs. Vacuum Mobiloil was used on the Peugeot car, while the Sunbeams used Wakefield Castrol oil. The Peugeot car was fitted with a Zimmerman Standard Honeycomb Radiator.

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THE TOURIST TROPHY MOTOR CYCLE RACES.

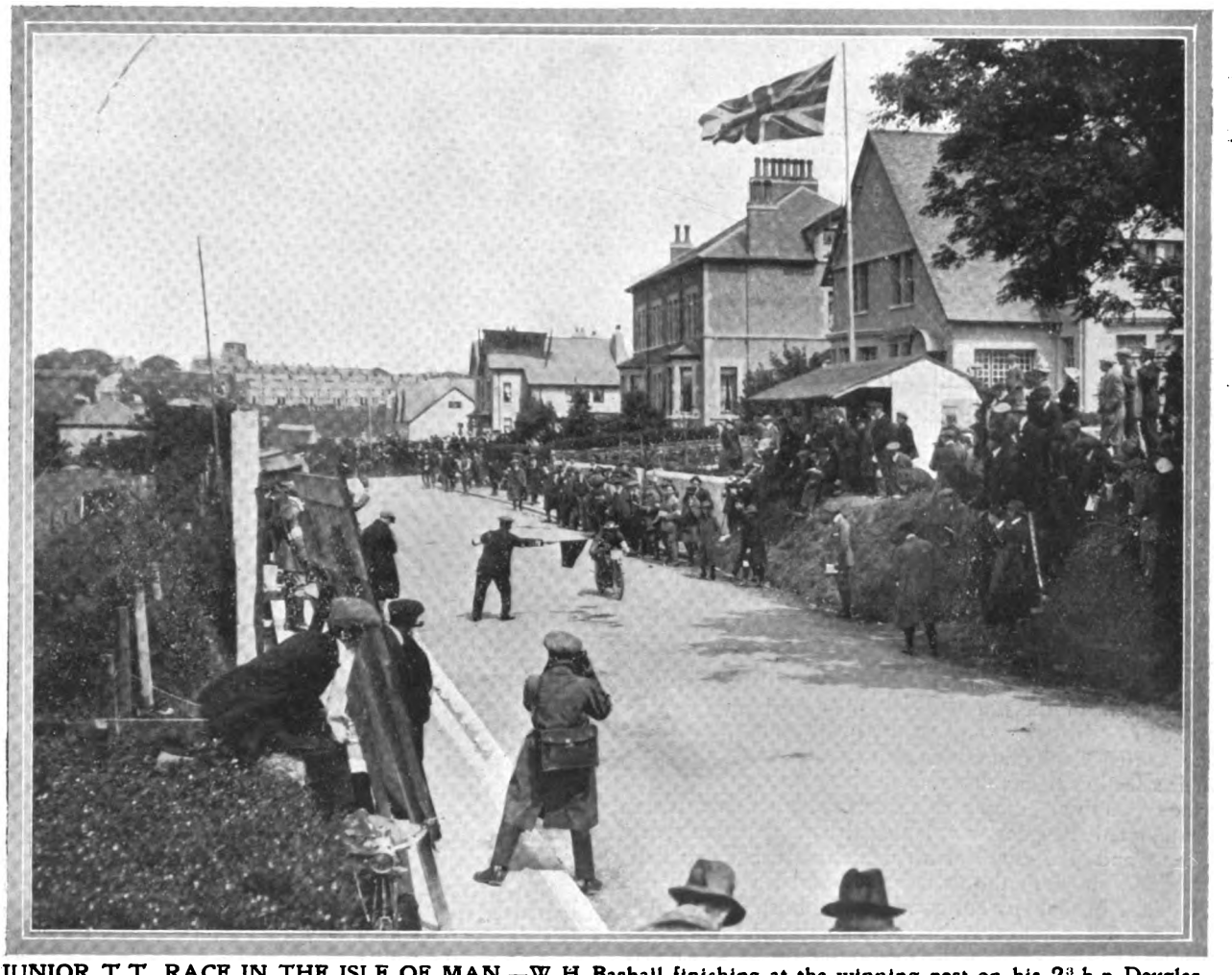
THE JUNIOR "T.T."

IN spite of the fact that the Trade did not officially support the Tourist Trophy races this year, they both proved very successful events. For the Junior race, which was held on Friday of last week, 25 entries were received, producing 20 starters. The course was one of 37½ miles, and starting just outside Douglas went *via* Peel, Kirkmichael, and Ramsey and over Snaefell back to the starting point. This had to be traversed four times, making the total distance 150 miles. At the start at 10 a.m. a drizzling rain made the riding none too pleasant, but better conditions prevailed after the first hour. The first lap saw the disappearance of four riders and at the end Bailey, on a 2¾-h.p. Douglas, was leading and was the favourite. In the next round, however, he had trouble and retired, and this let in his team mate, Bashall, also on a 2¾-h.p. Douglas, while Kickham, on a similar machine, took second position. Thereafter, the positions were unchanged, W. H. Bashall winning in 3 h. 46 m. 59 s., his average speed being 39½ m.p.h. It may be remembered that last year's winner, P. J. Evans, on a 2¾-h.p. Humber, averaged 41½ m.p.h. In this year's race, however, he was persistently dogged by sparking-plug, belt and tyre trouble. It is not uninteresting to note that the first three to finish were private owners. The times and placings were :—

		h.	m.	s.
1.	W. H. Bashall (2¾-h.p. Douglas) ...	3	46	59
2.	E. Kickham (2¾-h.p. Douglas)	3	51	36
3.	R. J. Cox (2¾-h.p. Forward)	4	6	29
4.	J. Stewart (2¾-h.p. Douglas)	4	29	4
5.	V. W. Owen (2¾-h.p. Forward) ...	4	31	54
6.	R. Ellis (2¾-h.p. Nut)	4	32	26
7.	H. Petty (2½-h.p. Singer)	4	42	19
8.	J. Haslam (2¾-h.p. Douglas)	5	0	5
9.	E. V. Piatt (2½-h.p. O.K.)	5	16	39
10.	H. G. Newman (2½-h.p. Ivy)	5	22	27
11.	P. J. Evans (2¾-h.p. Humber)	5	43	0

THE SENIOR "T.T."

The same course was used for the Senior race on Monday, but it had to be covered five times, making the total distance 187½ miles. The heavy rain of the previous night had made the roads very heavy, but a strong wind did its best to dry them. Of the 49 entrants there were nine absentees, these including the winner of the Junior race, W. H. Bashall, who had entered a 3½-h.p. Matchless. J. R. Haswell, on a 3½-h.p. Triumph, was the first to be sent away at 10 o'clock, the others following at one minute intervals. The Scott machines, which have two-



JUNIOR T.T. RACE IN THE ISLE OF MAN.—W. H. Bashall finishing at the winning post on his 2¾-h.p. Douglas, his time being 3h. 46m. 59s., giving an average of 39½ m.p.h.

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stroke engines, quickly assumed the lead, and at the end of the first round F. A. Applebee was first, in 46 mins. 31 secs., with his team mate, Frank Philipp, second, 23 secs. later, with Haswell, on the Triumph, a good third. During the second lap the order was unchanged, and as far as the first three places were concerned continued so until the end of the fourth lap, by which time the Collier Brothers had worked themselves into fourth and fifth positions. A burst tyre then put Philipp out of the running, and the race finished with a victory for Applebee by 6 mins. 54 secs., with J. R. Haswell second, and the Collier Brothers third and fourth. Applebee's speed averaged 48·65 m.p.h., and he also made the fastest lap at 49·44 m.p.h. Tyre troubles did not appear to be quite so frequent as last year, although one or two were put out of the race and others had their chances spoiled by this cause.

Twenty riders finished the race, and the following qualified for gold medals by finishing within 30 minutes of the winner :—

		h.	m.	s.
1.	F. A. Applebee (3½-h.p. Scott)... ...	3	51	3
2.	J. R. Haswell (3½-h.p. Triumph) ...	3	57	57
3.	H. A. Collier (3½-h.p. Matchless) ...	4	1	57
4.	C. R. Collier (3½-h.p. Matchless) ...	4	7	37
5.	J. A. Hoffmans (3½-h.p. Triumph) ...	4	12	49
6.	J. W. Adamson (3½-h.p. Triumph) ...	4	14	2
7.	A. Kirk (3½-h.p. Triumph)	4	14	7
8.	J. R. Alexander (3½-h.p. Indian) ...	4	14	27
9.	C. R. Martin (3½-h.p. Triumph) ...	4	17	4
10.	A. H. Alexander (3½-h.p. Indian) ...	4	21	1



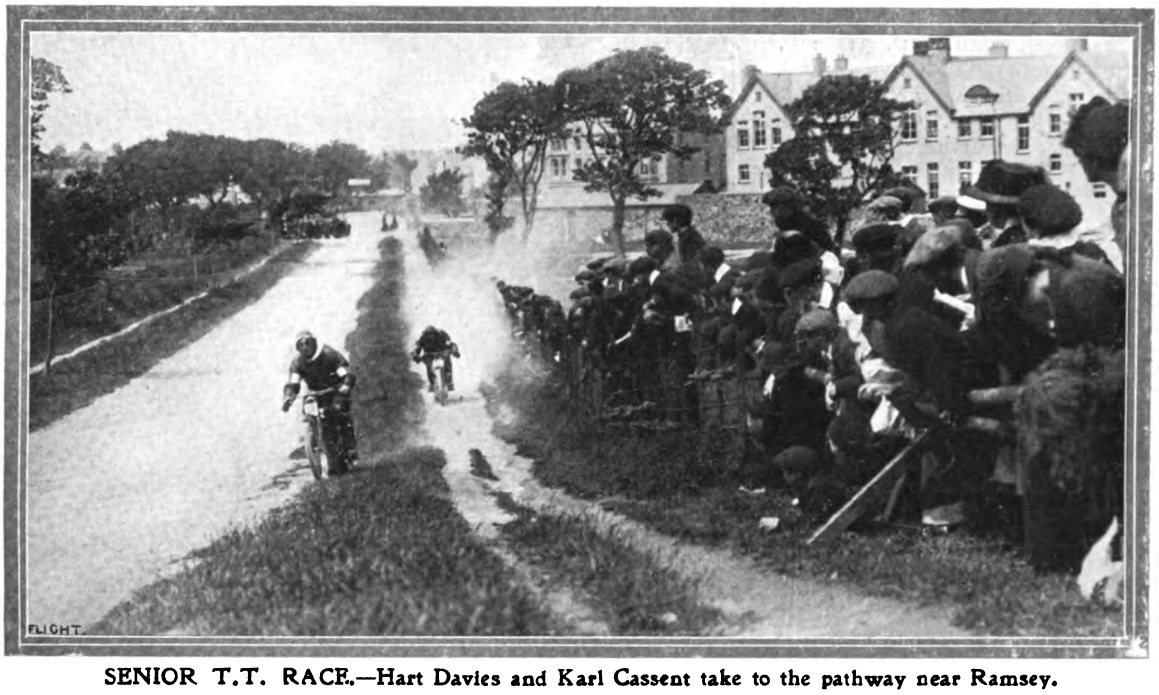
F. A. Applebee, the winner of the Senior T.T. Motor Cycle Race in the Isle of Man, rounding Hairpin corner on his 3½-h.p. twin Scott. His time for the 187½ miles was 3h. 51m. 3s.

Some disappointment was caused by the absence of last year's winner, Mr. O. C. Godfrey, who, although he had entered an Indian at the last moment, failed to start. The race had a peculiar interest in that it was the first time that single and twin-cylinder machines had met upon an equality, the regulations for this year's race stipulating the same maximum cylinder capacity for both types, viz., 500 cubic centimetres, whereas last year the limit for twin-cylinders was 585 cc. It was, therefore, looked



JUNIOR T.T. RACE IN THE ISLE OF MAN.—E. Kickham, who gained second place in the race with 3h. 51m. 36s., passing Hilbery on his 2¾-h.p. Douglas.

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SENIOR T.T. RACE.—Hart Davies and Karl Cassent take to the pathway near Ramsey.

upon somewhat in the light of a contest between these two types of machines, but the result is anything but conclusive as to the advantage of either, for it will be noticed that, leaving the two-stroke machines out of account for the moment, four out of the first half-dozen to finish were singles, all of which, by the way, were Triumphs and ridden by amateurs. The victory of the Scott was not altogether surprising as this machine naturally has a big advantage in that although it is a two-stroke cycle engine the full cylinder capacity is allowed, and, of course, there was no restriction on petrol consumption.

It is not uninteresting to notice how that in one way, at any rate, the large course, including Snaefell, which met with such strong opposition when first proposed, has led to the improvement of the present motor cycle. It has conduced to the development of the variable speed-gear with the result that in Monday's race there was only one machine with a single speed taking part.

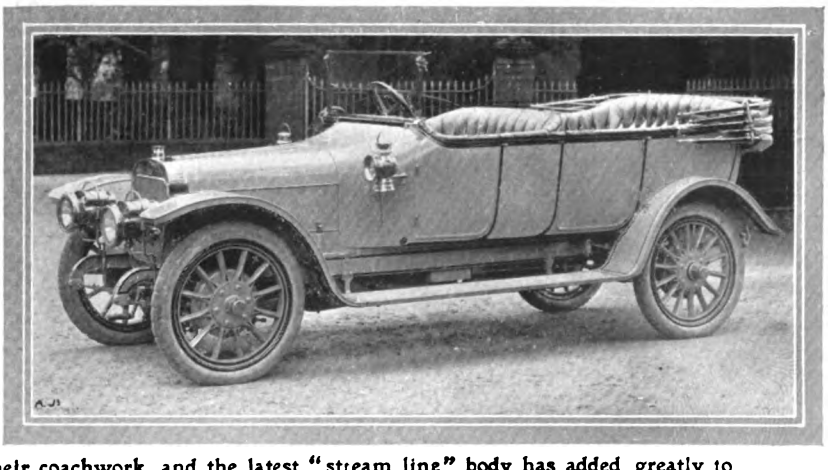
Another feature of more than ordinary interest was the presence of a number of water-cooled engines in the race, including the winning Scott, Blumfields, and the Regal machines which had Green engines.

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Motor 'Buses in New Zealand.

THE success of the motor 'bus as against the tram-car has been heard of in New Zealand, and we learn from Wellington that a Company is being formed with a capital of £10,000 to purchase and run motor 'buses in Palmerston North and the surrounding country district. The municipal authorities are considering the construction of a tramway at a cost of £69,000, but they are meeting with considerable opposition from a large number of the ratepayers who favour the motor 'bus project.





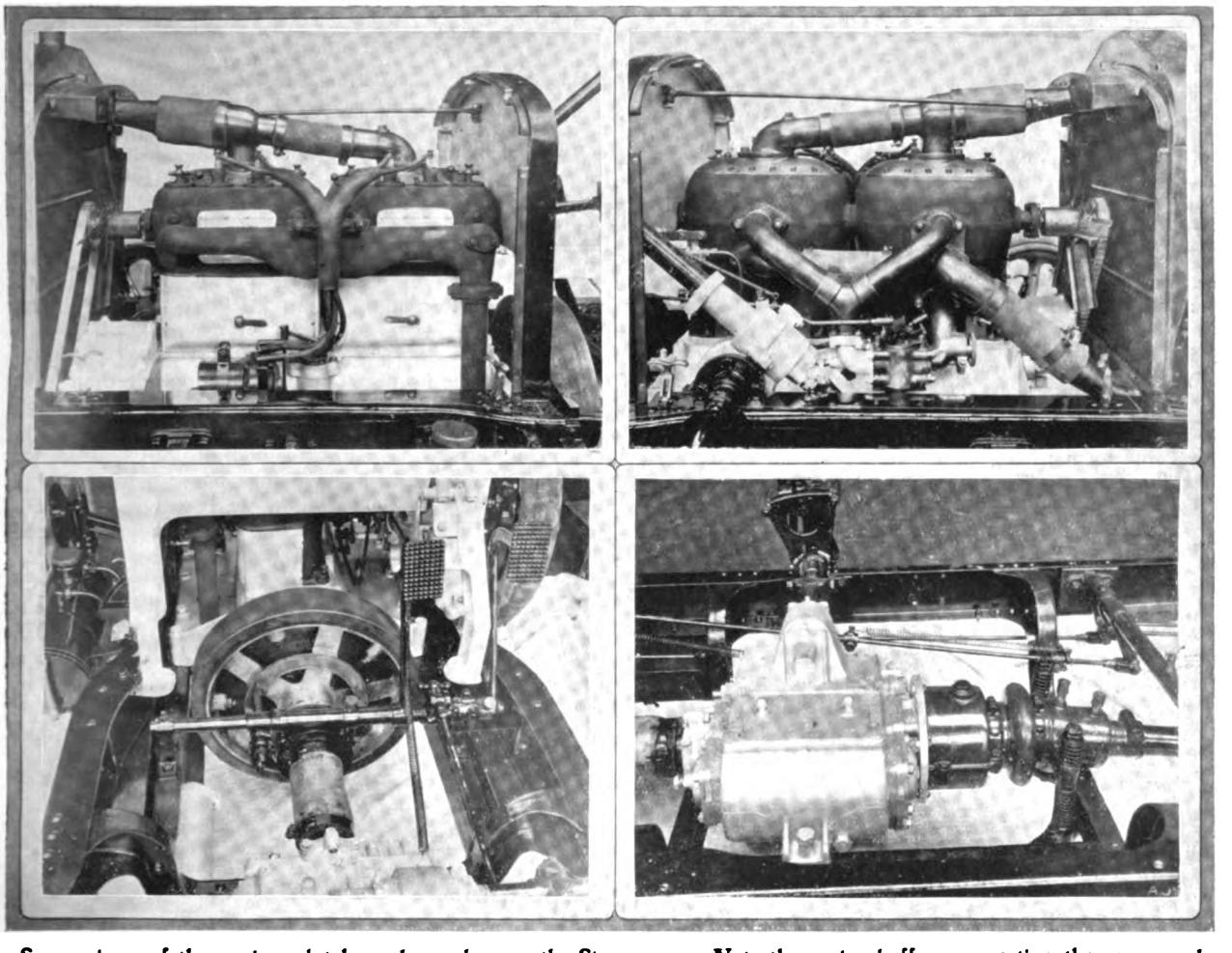
Argyll cars are rapidly becoming noted for their coachwork, and the latest "stream line" body has added greatly to their reputation. Equally important with the body itself, however, are the sunken boxes for tools and spare petrol, and other minor conveniences in the equipment that make for the comfort of those who use the car. The one-man hood on this car is an Argyll design, of which the "Kopalapso" firm have now acquired the patent rights.

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THE SINGER CARS.

One phase of recent developments in automobile engineering that must surely appeal with special favour to British motorists is the extraordinary progress that has been made by certain British firms and notably, for example, by the Singer Co. Their cars to-day are a revelation to those who might only be familiar with machines bearing the same name that were produced in the same factory years ago. By sound judgment and persevering application to the problems of success this firm has attained to an enviable place, and has brought its cars to a pitch of excellence that should at least be gratifying to those responsible for its design and production. For our own part, we have been particularly pleased with an all too brief experience in the use of the latest, 20 h.p. model, during a few days' motoring recently. From the moment of taking the seat at the wheel and applying the first gentle pressure on the accelerator pedal, it was evident that the car belonged to the thoroughbred class, and never for a moment afterwards did we have cause to alter the first favourable impression. Moreover, it was also worthy of note that the passengers on the car severally volunteered their appreciation either of its comfort or its quietness or its power—and the car is indeed, comfortable, quiet, and powerful. Powerful enough for more than average requirements, for it is both fast on the flat and an uncommonly good hill climber.

As a matter of fact, it has what some people might consider to be an excessively high capacity for climbing hills "on top," and its accomplishments in this direction would ordinarily leave us to say of such a car that it was rather under geared, only in this case we hesitate to do so on account of the remarkably smooth running and absence of vibration that accompanies every phase of its high-speed work on the flat. There are a variety of indications that we ordinarily take note of in passing judgment on an under-geared car; in this case, however, there was but the one feature already mentioned, and of that no one could very well complain.

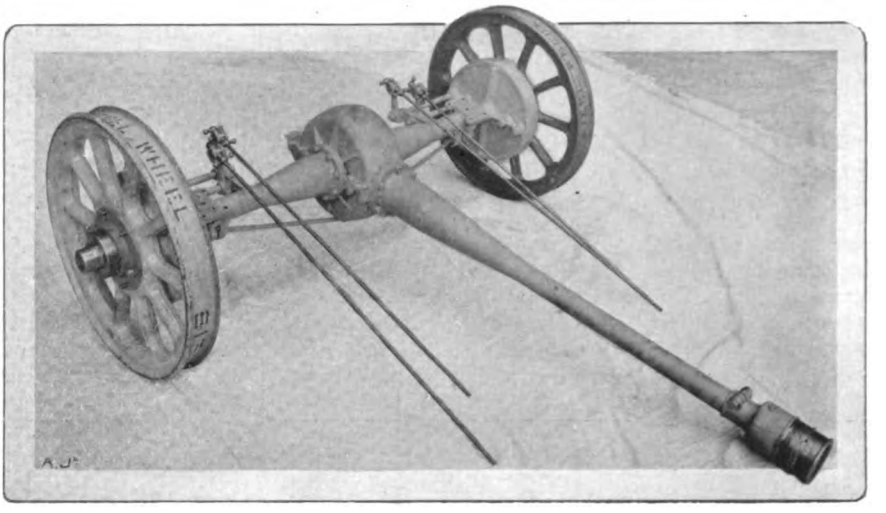


Some views of the engine, clutch, and gear-box on the Singer cars. Note the spring-buffers supporting the upper end of the propeller-shaft casing.

Having a four-speed gear-box, there is the less excuse for not using the gears provided for the purpose, and, indeed, we found that a reasonable recognition of the presence of the third speed gave the car a range of ability that in many instances is surprising. We have always favoured a four-speed-box, but the favour is in a sense without prejudice, because so much depends on the personal peculiarities of the driver. There is no doubt to our mind that the cross country touring facilities of a four-speed gear-box are very considerable, for, as we have said, provided the third speed is used intelligently the

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average rate of travel of the car can be kept at a very high level indeed. But it is necessary to remember that the third speed is there, not as an emergency, only to be used when the engine is almost at a standstill, but as a gear on which to climb when the engine speed shows the least inclination to fall below normal. The engine of the Singer car runs well, there is no doubt about it; it is smooth and quiet, and it always seems to have a little bit up its sleeve for further acceleration beyond the point to which it has been pushed. The car is, too, a splendid top-gear car in traffic, and yet it is in no sense restricted on the open road.

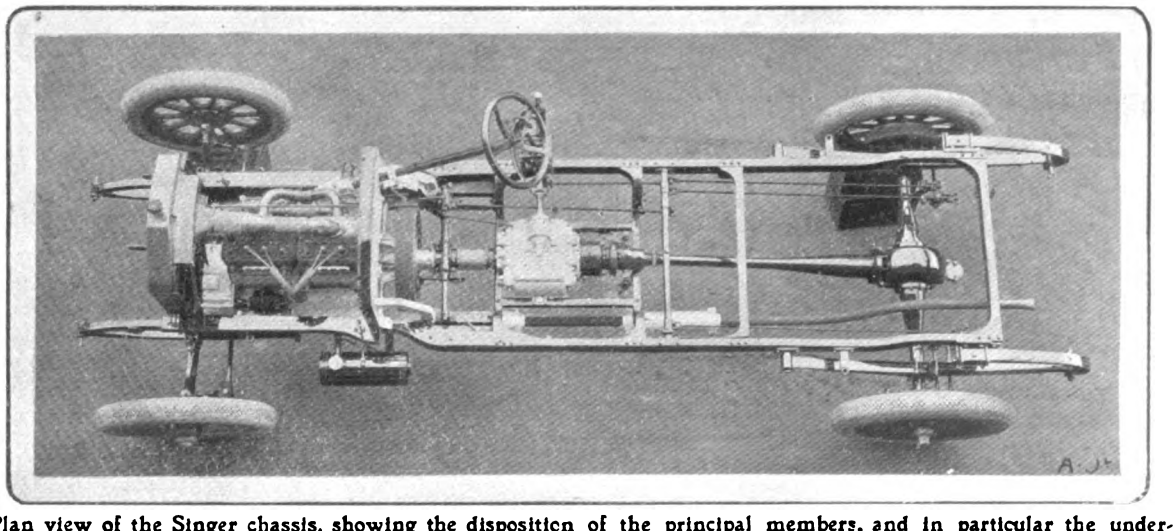


The back-axle and propeller-shaft casing of the Singer car. Note the double brakes in the rear hubs, and also observe the Sankey all-steel detachable wheels, which are fitted as standard on Singer cars.

There is another advantage in a four-speed box, which we often think is overlooked, which is that it facilitates the fitting of a really low emergency first speed. The first speed is an emergency speed and must be capable of dealing with a real emergency event, that is to say, it should be capable of getting the car up any conceivable slope on the surface of which the wheels can maintain their grip. We cannot, as it happens, say that we have actually tested the first speed of the Singer in this light, for the car that was very courteously placed at our disposal by the Singer Co.'s London branch, which is under the management of Mr. Read, had brand-new coach-work that it would have been unpardonable to have ventured in any ditch or dyke for the sake of a mere experiment.

And, whilst on the subject of coachwork, let us say a word in tribute to the well-finished complete cars that the Singer Co. turn out. We have always contended that a car that is not ready for the road with all its accessories is only half a car, and the reason why it is only half a car is because when it comes to putting on those little finishing touches that every average motorist demands nowadays there is far too often a lack of appreciation as to the purpose for which such niceties are intended Clocks, speedometers, and other instruments of the kind are rigged up in positions from which they might almost as well be absent, for all the real pleasure and assistance that they give to the driver. Now the Singer Co. makes a point of studying these things, and we have seldom seen a machine better equipped in this way than the car to which we have referred.

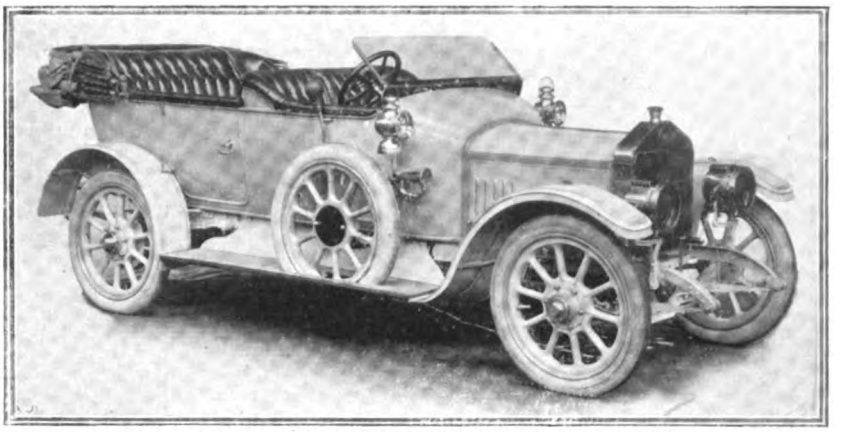
The instruments that were there call for no particular comment in themselves, they were all good of their kind, but the point we make is that they were carefully arranged. The speedometer was on the top right-hand corner of the dashboard where you could see it all the time; the oil indicator, one of the plunger type that rises when the pump is working properly, is within easy reach so that the driver stretching out his hand could press down the plunger and feel it return. The switch also was within easy reach. There was also a clock, and the petrol tank being on the dashboard the filler hole was equipped with one of the Coventry Motor Fittings Co.'s gauges to show how much fuel is left. These devices are, we have often thought, the most satisfactory sort of instrument that it is possible to have on the dashboard at all. Referring to the oil indicator just now, reminds



Plan view of the Singer chassis, showing the disposition of the principal members, and in particular the under-frames supporting the engine and gear-box.

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us that the Singer cars have an external oil reservoir fastened to the frame where it is in a very accessible position for refilling or observation. It carries a gauge glass that shows at a glance how much oil there is in the tank and by unscrewing the lid of the tank the stream of oil discharged by the pump can be observed. Thus, it is only the work of a moment to ascertain if the oiling system is in good trim, should there be any doubt as to the indications of the tell-tale on the dash. Of conveniences of this sort there are many on the Singer car, attention to detail being quite a key-note in design. It is a thoroughly comfortable car to drive, for the pedals and levers are all well arranged and the steering is particularly easy. Of the accelerator pedal, we would remark that it is hinged to the base of the steering column, and lies at a very steep angle downwards, so that it is flat under the sole of the foot when the throttle is closed. This facilitates very delicate control of the throttle, much more so than when the accelerator pedal is cocked up at a steep angle, as it is on some cars, so that it is only really comfortable when the throttle is full open. Some people complain—but every year they grow fewer in number—that it is not possible to drive a car sweetly and smoothly on the accelerator-pedal.



The 20-h.p. Singer ready for the road, with hood, screen, headlights, and Sankey all-steel detachable wheels. The chassis price is £485.

This seems to us to be unreasonable, but we agree that there are some ill-arranged pedals that certainly tax the driver's ingenuity and patience to manipulate them with *finesse*. For this reason we always consider that a pedal well arranged, as it is on the Singer car, is deserving of mention as a point to praise. The clutch and brake-pedals are normal and light to the foot, the members they operate are smooth in action. Attention is worth drawing to the brakes, all of which are on the rear wheels, and attention is also worth drawing to the brake adjustments, provided at both ends of the system, which is of such a kind that it can be set without the use of tools.

For the rest, and in so far as the chassis construction is concerned, we would refer those interested to the accompanying illustrations, which give a better idea than words of what the machine is like. It will be noticed that the engine is carried on an underframe, and thus sits fairly low in the car, thus reducing the propeller-shaft obliquity, and that the gear-box is similarly supported between two transverse members. Three-quarter elliptic-springs support the rear frame above the back-axle, and on the car we used helical-spring auxiliaries were also included. The road wheels at the rear are carried on tubular extensions of the axle casing, which is itself very well designed from the point of view of strength, neatness and accessibility. There is a very convenient oil filler at the back of the differential casing to facilitate replenishing the lubricant in that part. The upper end of the propeller shaft casing is carried on spring buffers so as to serve as a spring suspended torque rod, which to a limited extent plays the part of a spring drive, and thus helps the smoother action of the clutch, which is itself, however, provided with springs under the clutch leather. As may be seen, therefore, the Singer car both as a chassis from the engineering point of view, and as a complete vehicle from the motorist's point of view, is well worthy of the serious attention of any prospective buyer.

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How History Repeats Itself.

IN a recent issue of the *Evening News*, as a contribution to the discussion which is running in the columns of the journal on the dangers of London traffic and the remedies for them, appeared a sketch of the converging roads at Charing Cross, showing how the traffic could be diverted to a circular route round an island. The object of so diverting the traffic stream is that there shall be no crossing lines; each vehicle as it enters the stream keeps to its left until it reaches the proper point for turning out in the direction in which it is intended to proceed. It is a remarkable coincidence that a precisely similar suggestion was embodied in an article by Mr. W. Noble Twelvetrees on the regulation of London traffic, which appeared in the AUTO. of October 12th, 1907. It is either a case of great minds thinking alike or of a curious repetition of history!

Rambles in Somerset.

To their Ramble Series, Messrs. Methuen and Co. have added a volume by Messrs. G. W. and J. H. Wade. As its name implies, this book is not a Guide Book in the ordinary sense of the word, but is a sort of travelling companion for anyone who wants to see what is worth seeing in Somerset. The work is not one for those who wish to know the quickest way from here to there, but it is for those who are desirous of taking an intelligent interest in things they see by the way. Starting from Bath, the authors first pursue their way across the centre and then down each side of the county finally finishing up in the west with a view to embracing in its essential features the whole of the ground. Somerset provides no lack of historical antiquarian details, all of which the authors tell of in most engaging fashion as they lead us in these rambles. Then there are literary associations too numerous to mention here, while the scenery, in all its infinite variety, is described in such a manner that we feel the authors know and love the county of which they write.

The volume is illustrated by a splendid selection of delightful photographs, while a sketch map suffices to refresh one's memory as to the geography of the district covered. The price of the publication is 6*s*.

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POINTS FOR THE BUYER.

NOT always do you come across a low priced American car that is built as strongly as the 22-h.p. Maxwell "Mascotte" car, which is one of the numerous models marketed in this country by the United International Motors, Ltd., of 212, Great Portland Street, W.

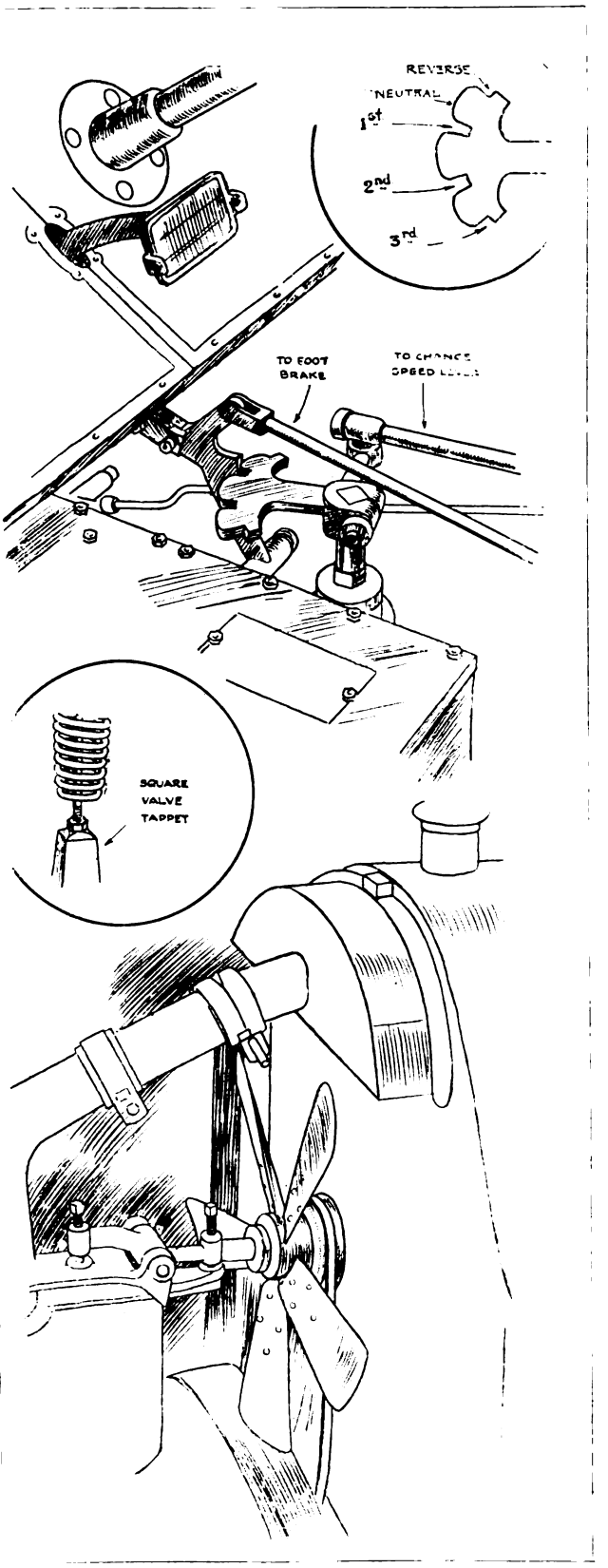
The unit principle upon which the engine and gear-box of this car are designed, has in this case been carried to an extreme. Not satisfied with bolting together the castings of the basechamber and gearbox, the base of the Maxwell power-unit is formed by one unbroken casting, extending from the foremost crank bearing to the rear-most bearing of the gear-shafts. This casting is undoubtedly a very fine example of the aluminium founder's art; it is very substantial and not divided in the customary upper and lower halves, but is carried right up in one piece and the shafts are inserted from above. As will be seen from our illustration, the crank-shaft is of liberal dimensions and runs in not less than five good-sized bearings, a feature which is by no means frequently found even in more expensive cars. This very rigid casting and the ample support of the shafts ensures perfect alignment, one of the fundamental conditions for a long term of usefulness.

A point on the Maxwell that will undoubtedly appeal to the novice is illustrated in the first of our sketches, which shows a very ingenious, yet simple and absolutely safe gear-lock. The gears are controlled by the usual side lever on a straight through quadrant. Fitted to the upright pin, through which the movements of the gear lever are communicated to the gears inside the box, is another quadrant, which is provided with a number of notches corresponding to the number of speeds, viz., three forward and a reverse. The clutch-pedal, which also serves to work the foot brake, is provided with a projection that fits into one of these notches when one of the gears is in mesh, with the result that it securely locks the gear wheels. An accidental jumping out of mesh is therefore quite impossible, while at the same time a driver is prevented from attempting to change gear without first withdrawing his clutch, a habit to which we all have been prone during the days of our novitiate in the art of driving a motor car.

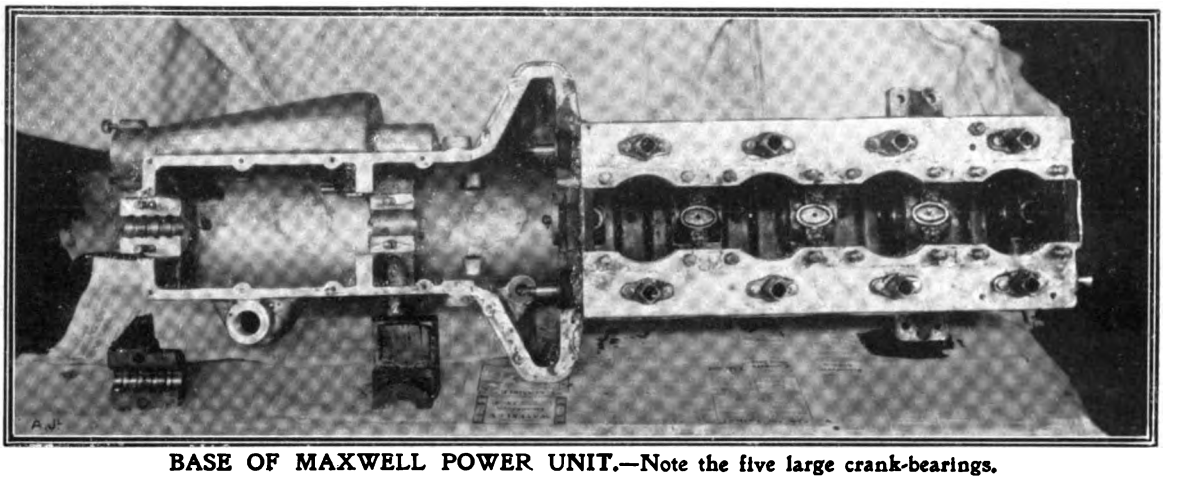
Particularly neat and simple, yet very efficient is the adjustment of the fan belt shown in the lower sketch, which is almost self explanatory. The tension of the belt is increased by screwing down the square-headed bolt just behind the fan, while a similar bolt on the other side of the hinge serves as a lock. The accessibility of this arrangement is only one of the many points in its favour.

More out of curiosity than for any other reason have we picked out the square valve tappet of the Maxwell for illustration in the small inset sketch. It represents the only valve tappet of square section that we can remember, and none of the officials of the company were able to give us the reason for its unusual shape. In the design of a motor car, however, nothing is done without a certain well defined reason. We do not know whether the designer had the same idea in his mind when he decided on the uncommon shape of the tappet, but we believe that a square tappet will wear the guide less than a round one, because the side pressure exerted by the cam at the moment of lifting is distributed over a considerable area in a tappet of square section while it is confined to a line only in the case of a circular section.

The Maxwell "Mascotte" car, complete with body and equipment, is sold at £225.



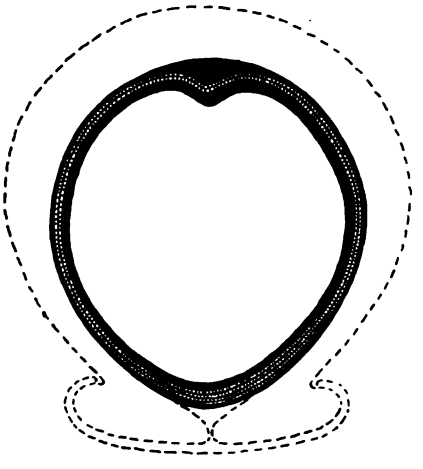
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BASE OF MAXWELL POWER UNIT.—Note the five large crank-bearings.

SEARLE UNBURSTABLE INNER TUBES.

THE continued success of the Searle Unburstable Inner tube demonstrates more than anything else that the



claims which are made for it are not unwarranted, but further improvements have recently been effected in the manufacture, especially in the joining of the two ends of the tube. We understand that by a special process the joint is now vulcanised and moulded with the whole tube, so that it is brought down to the same thickness as the rest of the tube. This has eliminated the slight "deadness" at the joint and gives equal "life" all round the tube. Incidentally it may be mentioned that every tube is tested before leaving the works to a pressure of 80 lbs. and all repairs are guaranteed to stand a pressure of 50 lbs. We may remind our readers that the feature of the Searle Unburstable Tube is that it has two layers of fabric so arranged that the tube is not prevented from freely expanding to properly fit the cover, as shown in the accompanying sketch, and yet it is amply protected against bursting should the cover be cut or damaged. By its use many old covers which would otherwise have gone to the scrap heap have been given a new lease of life. It has also been shown that should the cover be so damaged as to allow the tube to come in contact with the road, it will still be possible to continue running for some time. The tubes are marketed by Messrs. Hall and Searle, Ltd., 6, Livery Street, Birmingham.

HERTS COUNTY A.C. GYMKHANA.

IT was with grave misgivings that the members of the Herts County A.C. wended their way to The Grove, Watford, for their annual gymkhana on Saturday last. All the morning, and indeed right up to the time fixed for starting, it rained heavily, but fortunately the weather cleared in the afternoon and for the most part the gymkhana was carried out in lovely sunshine. Lord Clarendon, President of the Club, had once more kindly placed his park at the disposal of the members, and he also took a great interest in the various events, while he afterwards presented the prizes. The first event was an egg and spoon race, which was won by Mr. Ernest Webster and Miss Webster on a 15-h.p. Rover in 46⅗ secs. Mr. F. J. Jenkins won the Turk's Head event, securing every ring and obtaining four out of the six heads. Mr. Murray Carson was second. On his 8-h.p. De Dion Bouton car, Mr. H. W. Graves Morris was an easy winner in the balloon race, bursting every one of the half dozen balloons, and Mr. C. Lowry was second with five to his credit. The police trap race consisted of driving round staves and dummy policemen, five seconds being added to the competitor's time for each stave touched, ten seconds for policemen and 20 seconds for an inspector. Mr. H. F. Mence was first on a 8–10-h.p. Clement-Bayard, and Mr. F. G. Warwick second on an 11·9-h.p. Arrol-Johnston. A new event was the besieged city race in which half a dozen ladies were seated and lightly tied to chairs in an enclosure. Half the competitors drove their cars from each end to a line in the middle of the course, and chose their lady from the enclosure, released her, took her to the car, started up the engine, and drove back to the starting line on the reverse gear. An exciting contest resulted in a dead heat of Messrs. F. Murray Carson and W. Whittall, and in the run-off Mr. Murray Carson was declared the winner. Mr. Mence was awarded the first prize and Mr. John Orton the second in the Hat Trimming Contest. The programme concluded with musical chairs, of which Miss Sutton was declared the winner, and Miss Dot Carson second.

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By VICTOR HART.

Water-Cooled Engines.

WHEN visiting Daventry three weeks ago for the inter-club team contest I came across two of the latest examples of water-cooling practice as applied to motor bicycles. One of these, owned by Mr. R. C. V. Brooke (hon. sec. of the Birmingham M.C.C.), was driven in the competition, but unfortunately a puncture put an end to Mr. Brooke's hopes for his club, and he retired, which happening provided me with an opportunity for a long chat. This gentleman is a sporting enthusiast, able to indulge his fancy for trying out departures from stereotyped practice and with years of experience behind him, his opinions are more respected by me than those of fifty of the average sort of owners whom I meet. The engine on his machine is the new single-cylinder water-cooled Precision 499 c.c.c. and the owner expressed his full satisfaction with its performance over a good many long distance trips covering some hundreds of miles. On long steep hills the engine maintains speed without semblance of knocking, and will continue to pull at pretty well full power under circumstances that usually brings an air-cooled engine to a standstill. Such comparisons are with a single-geared machine, up hills taken on the run, but I venture to doubt the advantages of water-cooling on a solo machine fitted with a multi-speed gear, driven by the normal man lacking enough knowledge to procure every possible fraction of power out of the engine.

This class of rider includes about 90 per cent. of motor-cyclists who boggle the carburettor and ignition levers when negotiating steep gradients, and I feel sure their comfort is better served by change-speed gears than by water-cooled cylinders. The objection to the latter is the comparatively large addition to the total weight involved by the water jacket and water radiator, instanced by Mr. Brooke's machine at 280 lbs. or over 300 lbs. if some form of change-speed gear be fitted. The other machine that I saw at Daventry was the new twin-engined Williamson with horizontally-opposed cylinders similar to the Douglas, and it is on this type that the possibilities of water-cooling can be better exploited than for a single vertical cylinder. This opinion is not put forward—as regards the Douglas type of engine—with the idea that other than air-cooling is necessary, but I hear so many conflicting accounts concerning the behaviour of the valves in the rearmost cylinders of twins that an interesting field for investigation opens for those who would like to make experiments in this direction. As a practical proposition I cannot conceive much scope for water-cooled engines on solo machines, nor for side-car mounts where the weight of machine and passengers is low. Even for cycle cars, the extra weight of the water-cooling system, *and greater risk of breakdown*, seems too much of a handicap to gain very little more power on hills.

Fans for Cooling.

A properly-designed air-cooled cylinder will stand heating up to a remarkable extent, and without fear of piston-seizure, if an ample supply of oil is constantly supplied. I have proved this fact when driving a Duryea car, a three-cylinder air-cooled engined machine of American origin, which achieved a short measure of popularity in this country nearly ten years ago. A later experience so confirmed my ideas on this matter that no argument to the contrary will alter belief in the merits of air-cooling for motor cycle purposes. That experience was with a tiny car called the Piccolo, built in Germany, and marketed here for a few months in 1906 or 1907. To-day it would be called a cycle-car, as it could not have weighed (complete with a two-seater body) more than 5 cwts. equipped with a 90° twin air-cooled engine, three-speed gear-box, and propeller-shaft drive to the live axle. I knocked about on one for more than a week, never failed to easily climb 1 in 4 gradients with self and passenger aboard, and could always average 20 m.p.h. on switchback roads. The engine was placed athwart the frame behind an imitation radiator, just the same as the engine on the 1912 Morgan cycle-car, and despite the small dimensions of the cylinders, each about 68 mm. bore by 80 mm stroke, the vehicle would just as easily climb long and steep hills at the end of a 100 miles straight away run as it would when starting out. This continuous development of full power was due to the cylinders possessing very narrow, thin and large diameter radiating fins and, much more important, the fitting of a pair of cooling fans situated before and behind the cylinders. The fans were mounted on a single shaft, passing between the V cylinders and driven by a boot-lace belt off a pulley carried on front of the crank-chamber.

Cooling fans, of a sort, sold in considerable numbers in 1903 and onwards for a year or two, but they were ineffective for the purpose, being placed on but one side of a single cylinder, parallel with the direction of the machine, and were merely churning the air. Several patented arrangements for driving these fans were widely advertised, and much money was thrown away by purchasers, who after trying for a few runs discovered that engines kept as cool without them. It was a ventilation expert who explained to me at that period the foolishness of attempting to blow cold air on to one side of a cylinder, unless a suction fan was placed on the other. Such a combination was employed on the Piccolo, and one drive on that vehicle was memorised through the round driving belt breaking and being lost on the road. Prior to the mishap, the little car romped up 1 in 12 gradients on top gear; after the belt disappeared, it was change, change, change, on every little rise, and for the next hour most of the work had of necessity to be done on third gear. The fitting of a makeshift belt—formed

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with four long leather boot-laces plaited together—instantly restored the engine to its normal power. Several tests over a 5-mile stretch of road, with and without the fans working, demonstrated to my satisfaction the enormous difference produced at the same setting of the throttle and ignition levers. Designers who desire to keep the power product of motor cycle engines at a constant figure, might do worse than experiment with fans before adopting the doubtful expedient of water-cooled cylinders upon passenger machines.



Notes from New York

THE bill introduced into Congress with a view to stamping out joy riding by chauffeurs has been considered by a committee, which has recommended that the proposed punishment is too severe, and it is suggested that instead of imprisonment for not less than one or more than ten years, the punishment should be a fine not exceeding $1,000, or imprisonment not exceeding ten years or both.

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So much stir has been made by horn-dealers and motorists regarding the recently made by-law in Philadelphia, prohibiting the use of any but bulb-type horns on automobiles, that the Director of Public Safety has issued an amendment permitting the use of any signal device providing it has only a single note which is not prolonged.

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A 5-ton truck recently bought by the Board of Works at Detroit, Mich., is used by the road repair department to convey the hot asphalt from the works to the place where it is used. The asphalt is loaded into the truck all hot, blanketed with heavy canvas, and driven as fast as possible to the place where it is required. It is then still hot enough to be used without any re-heating, thus saving considerable time and expense.

• • •

Mr. Frederick W. Whitridge has been elected president of the Automobile Club of America to succeed Mr. Henry Sanderson, Mr. Henry Evans has been elected vice-president and chairman of the Executive Committee, while the other vice-presidents are Messrs. Edward Shearson and Henry R. Taylor.

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Work has now been commenced on what is to be the new horseless city in the neighbourhood of the Indianapolis track. The city is to be called Speedway, and those who are behind the scheme hope that within a few years it will become one of the principal industrial centres in the States, and devoted entirely to interests allied with the motor car trade. A tract of land, a thousand acres in extent, has been obtained, and the first factory to be put up will be that of the Prest O Lite Co., which at present has six different plants, and intends to combine them under one roof. It is reported that two large motor companies will also build factories, while Dame Rumour says that a fourth factory will be devoted to the manufacture of tyres. All factories and dwellings in the new city will be of steel and concrete construction, and it is proposed that no horse traction shall be allowed in the streets, each company making its headquarters in the new city being required to sign an agreement to use motors only for traction purposes.

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For some time it has been rumoured that the Packard Motor Co. intended to give up the manufacture of 4-cylinder cars, and also reduce its prices on the 6-cylinder models. According to an announcement by the Company, however, the manufacture of the "fours" will be continued, while prices will only be reduced slightly

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The competition for unique records goes merrily on among American motor car firms. The Thomas B. Jeffrey Co. the other day received an order for a Rambler car at their Kenosha Works, which had been brought from Watertown, Wis., by aeroplane. On the 20th ult., an Alco truck left Philadelphia with a load of soap which it is to take to Pataluma, Cal., a journey of 4,400 miles. This is claimed to be the first trans-continental delivery of such a consignment.

• • •

The latest advice regarding the Vanderbilt and Grand Prize Races is that the Vanderbilt Cup Race will probably be run on Saturday, September 21st, with the Grand Prize Race on the previous Saturday, and the Wisconsin and Pabst Trophy Races on Friday, September 20th.

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Next year the motor car number-plates for New York will probably have white numbers on a purple background, and for the first time the date 1913 will appear, while the plates for commercial vehicles will have the word "commercial" upon them. This latter is to put a stop to the trick by which some owners purchased for $5 a number-plate intended for commercial vehicles and then displayed it on their private car, thereby saving from $5 to $25, the plates for both classes of vehicles being the same.

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Content to rest on the laurels won in the 500-mile International Sweepstake on the Indianapolis track, the National Motor Vehicle Co. has announced its intention of withdrawing from racing, at any rate for the remainder of the present season.

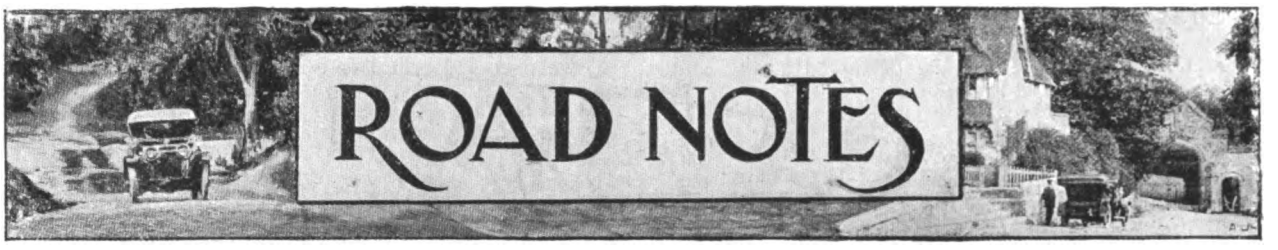
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There is a strike in Montgomery County, Maryland, which is gladdening the hearts of the motorists in Washington, D.C. The deputy-sheriffs and constables in the county, whose duty it is to arrest Washington motorists who exceed the speed limit or have not Maryland numbers, have "downed tools." It appears that they drew a commission of $1.50 out of every $15 fine imposed and the sheriff wished to share the "graft."

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According to Secretary of State Lazansky of New York, the number of cars registered in New York State up to June 1st was 85,300, comprising 76,164 ordinary cars, 7,320 commercial vehicles, 1,572 dealers, and 244 vehicles which were exempt. During last year the total was 84,989 vehicles. The number of driver's licences was 36,065, while the amount received in fees from February 1st to June 1st was $856,310.25, the total for vehicle licences being $749,410.

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COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham.

GREAT NORTH ROAD.—Members are requested to slow through Tempsford. Roller working 4¼ miles south of Grantham, full width, boards used in the day and lights at night. Hatfield-Broadwater gas-pipes being laid 200 yards south of the 28th milestone, and as this is a narrow road it is very dangerous to motorists, especially at night.

LANCASHIRE.—*Lancaster-Kendal Road.*—Road widening 4 miles north of Lancaster, and foundation stones being laid half-width, great care needed, as there is a sharp turn here, boards in the day and lights at night.

Preston-Garstang Road.—Water main being laid at Withy Trees, near Preston, lighted at night; special care is necessary owing to narrow space for traffic. Half-width under repair between 5th and 6th milestone north of Preston; roller at work, protected at night. Members are requested to drive slowly through Garstang.

Members are requested to slow through Galgate, 4 miles south of Lancaster.

YORKSHIRE.—*Leeds District.*—Timing is still in hand at Moortown, Leeds; between Askern and Doncaster; through 10-mile limit at Burley, and at Ilkley, and on Malton-York Road, ¼ mile West of Malton from 1st milestone.

NEWCASTLE-ON-TYNE. — *Town Moor, Newcastle.* — Measured distance between North Road Police Station and Blue House Police Station.

EAST.

LOWESTOFT. — *London-Yarmouth Road.* — Road completely blocked, alternative route turn to right at Kensington Road, then left along Marine Parade, and thence to main road at Harbour Bridge.

SOUTH.

BATH ROAD.—Timing at Harlington. Members are requested to slow through Maidenhead. Road under repair between Sonning cross-roads and Reading, special caution necessary at night. Control working between Twyford and Wargrave.

HERTS.—Road closed at Apsley so that members proceeding from Watford for Hemel Hempstead must travel up as far as the Princes Arms at Boxmoor and then first to right.

KENT.—Timing in hand at Bexley Heath, Shooters Hill, and Blackheath.

LONDON DISTRICT.—Control on Victoria Embankment between Westminster and Tate's Art Gallery. Timing is likely to be in force in and near Golder's Green, Mitcham, Morden, Sutton, Banstead, through Croydon to Purley, between Wimbledon and Ewell, between Hounslow and Staines, Kingston Hill, Putney Heath, Harle-den, Deptford, Camberwell, Maida Vale, Highgate, Holloway, High Street, Lewisham, also between Sudbury and Harrow Hill.

OXFORD ROAD.—Control working in Denham Avenue from off Normans Hill. Under repair between Wheatley Bridge and Great Milton cross-roads. Roller working.

SOUTHAMPTON DISTRICT.—*Millbrook Road.*—Still partly closed, alternative route Paynes Road, Howard Road and Archer Road to Avenue for London cars, and *via* Waterloo Road for Southampton cars to Commercial Road.

WILTS.—Bibury races will be held at Salisbury on the 9th, 10th and 11th July, and a control will probably be worked on the Romsey-Salisbury road at Sherfield.

SURREY.—Control at South Godstone railway station, between Kingston-Esher, Kingston-Leatherhead road, and between Ewell and Epsom.

Chertsey.—Control likely to be working in Chertsey Lane, Thorpe.

Eastbourne Road.—Timing likely to be in force in and near Kenley and Whyteleafe, also between Dorking and Westcott at Milton Heath.

Control likely to be working in the Bridge road, Godalming 10-mile limit.

SUSSEX.—Control likely to be working on the Grand Parade, Eastbourne, also this side of Arundel from the cross-roads on Berryhill.

WEST.

SHREWSBURY DISTRICT.—*Bridgnorth Road.*—Re-metalling full width at Church Stretton, Shrewsbury end of village.

CORNWALL. — *Launceston-Bodmin Road.* — Under repair in Southgate Street and Broad Street, members are advised to drive with caution.

MIDLANDS.

COVENTRY ROAD.—Members are requested to slow through Redbourne, Fenny Stratford and Stony Stratford.

WARWICKSHIRE. — *Warwick-Kenilworth Road.* — Complaints have been received of furious driving at Guys Cliff, and members are requested to drive slowly.

DERBYSHIRE. — *Derby-Loughborough Road.* — Tar spraying between Shardlow and Alvaston tram terminus, alternative route from south to north, turn to right at railway bridge through Sawley, Draycott and Borowash entering Derby at Nottingham Road.

MANCHESTER DISTRICT.—Controls working between St. John's Church (Hopwood) to Birch Mills on Heywood-Manchester road, also between St. John's Church (Hopwood) and Hebers Village on Heywood-Middleton road.

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Increase in A.A. and M.U. Membership.

SPEAKING at the Annual General Meeting of the Automobile Association and Motor Union on Monday, the Chairman, Mr. W. Joynson-Hicks, M.P., said that during the year ending April 30th, 1912, 15,000 motorists had joined, thereby beating all previous records. In May, 3,178 new members were added, while the increase for the month of June was 3,786 as against 1,513 in May and 1,396 in June of last year. The total membership to July 1st, 1912, was 48,620. Mr. Joynson-Hicks announced an important development in connection with the ever increasing patrol organisation. For some time the patrols have been provided with sentry boxes at various points round London, and it is proposed to erect similar sentry boxes at intervals of about ten miles on the main roads to London and other important cities, and to connect each sentry box to the nearest telephone exchange.

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The use of these telephones will be entirely free to the A.A. and M.U. members, with the exception of any charges for trunk calls. Ultimately it is hoped to link up all the various centres.

Mr. Joynson-Hicks also referred to the branch offices which have been opened during the year at Exeter, Plymouth, and Norwich and in the City of London.

On the subject of legislation, he said that the question of the amendment of the Motor Car Act had received the careful thought and consideration of the committee, and it was possible that motorists' proposals would receive a hearing in the House of Commons, if not this year, early next year. The Association's Bill had been sent to the Royal Automobile Club, also the Society of Motor Manufacturers and Traders, and the first of the conferences to be held on this important matter took place last week.

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting of the Management Committee was held on Monday last. Present: Mr. A. J. Allison, presiding, Mr. J. Cates, Vice-President. Committee: Messrs. Shaw, Adey, Wallis, Holland No. 2, Tyler, and Emmerson; Mr. H. Pye, Trustee.

The minutes of the previous meeting were read and confirmed.

Applications for membership having been dealt with, the committee considered an application from the proprietor of the Metropole Dining Rooms at Brighton, for honorary membership. After consideration, the committee decided that there appeared no objection to appointing dining rooms in provincial towns for the reason that it would be beneficial to members and chauffeurs generally. In this case, however, the committee were of opinion that the charge made for bed and breakfast was beyond the means of the chauffeur, and instructed the secretary to point this out to the applicant, and place the application on the agenda for the next meeting.

The secretary submitted his report as regards the smoking concert. The committee expressed their satisfaction at the large attendance, and the manner in which members showed their appreciation of the efforts made for their comfort.

The Committee considered a resolution by Mr. Holland that the Nation Society of Chauffeurs add to their Parliamentary programme the necessity for the chauffeur to have one day's rest in seven.

After a lengthy discussion, it was arranged to obtain the opinion of the members on the subject, and the secretary was instructed to notify members that Monday, July 15th, would be an open night, the committee to meet earlier, and after the ordinary business members would be asked to debate the resolution and discuss the Insurance Act.

Letters were read from the solicitor *re* recent cases, and from member No. 262, W. Robertson, thanking the Committee for the services of the solicitor at Inverness, and warning members of the activity of the police in that district. Member No. 214, J. James, wishes the members to take special precautions in the Arundel and Littlehampton districts. Special constables are working traps for the week-end, and police activity in respect of trapping has never been so apparent as at the present time.

Members Please Note.—First open meeting on Monday, July 15th, at 8.30. Subjects—Resolution *re* rest day, by P. Holland, No. 2. Debate on the Insurance Act. Opened by the Secretary.

Accepted for Membership.

A. J. Jennings, London, S.W. — Ernest A. Smith, Worcester.
Arthur Wright, Bradford. — William Hawkes, London, N.W.

Applications for Membership.

Percy Wood, London, S.W. — Charles Chappell, London, S.W.
John H. Nash, London, S.W. — Sidney Cox, Putney, S.W.
George C. Weeks, London, S.W. — G. W. Stokes, Preston Lancs.

Two applications were put back for further inquiries.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally. ARTHUR SEXTON.

Particulars of Membership.

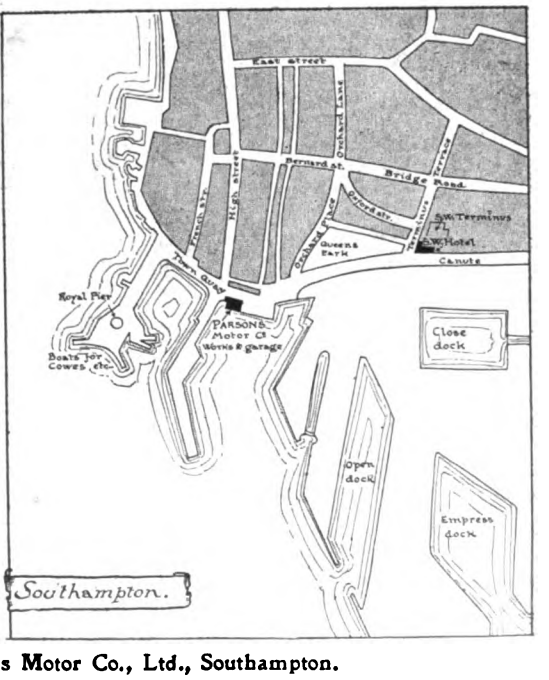
Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

SMOKING CONCERT AND HOUSE-WARMING.

THE Society opened their new clubrooms on Thursday, June 27th, when there was a large attendance of members and friends, over





N.S.C. GARAGES, No. 5.—The premises of the Parsons Motor Co., Ltd., Southampton.

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200 being present, Mr. Allison being in the Chair. Everything possible had been done by the committee to ensure the comfort of their guests, with the result that the company spent a most enjoyable evening.

The musical programme was all that could be desired, and enabled the members to meet the Society's genial solicitor under different circumstances than usual. Mr. Appleton received a well-deserved encore for his rendering of "Glorious Devon"; Mr. Gordon Marsh delighted his audience with "Water Scenes," "The Street Watchman," and "No more stopping out late"; Mr. Moores was happy in his rendering of "Thora"; Mr. Bert Russell convulsed the audience with "My Dreams," "I don't care what becomes of me," "The Playwright," and "Ha, ha, ha! He, he, he," the latter song causing a continuous scream of laughter. The honours of the evening were taken by Mr. Charles Easton in his clever song sketches. Mr. Easton sketches the subjects of his songs while singing them, and being possessed with a pleasing bass voice, this, together with his clever sketching, won the hearts of his audience. His songs "Big Ben," "Britannia," "The Old Brigade," and "Asleep in the Deep," were much appreciated.

Mr. J. Brown, known as the "Ambassador's man," gained a hearty encore for his song, "Bobbing up and down like this," giving as an encore, "Henry the Eighth."

Mr. Williams (tenor) received an encore for his rendering of "Roses," giving as an encore, "Take a pair of sparkling eyes"; Mr. Cady was encored for his song, "I looked out of the window";

Mr. Cooke pleased the company with "Meet me to-night in dreamland."

Mr. Wade presided at the piano and proved a very efficient accompanist, and the success of the concert was in a great measure due to his efforts.

Mr. Wade and Mr. Easton are employees of Messrs. Brown Bros., Great Eastern Street, and the thanks of the members are due to them for placing their talents at the disposal of the committee. During the evening Mr. Appleton on behalf of the Society thanked Messrs. Rawlings Bros. for their exceeding kindness to the Society, and the arrangement made in the new garage on behalf of chauffeurs. Mr. Cates endorsed all that had been said by Mr. Appleton. Mr. Herbert Rawlings in particular had proved himself more than a friend, taking the utmost interest in the Society, and he voiced the wish of the members when he trusted that Messrs. Rawlings Bros. would be well repaid by increased business for their consideration of the chauffeur. Mr. Herbert Rawlings amidst applause said that the firm of Rawlings Bros. were pleased to have such a well-conducted Society on their premises, and so long as the Society's business was carried out on straightforward lines his firm was only too pleased to help them. He thanked the audience for the kind manner in which they had received him and the name of the firm.

The concert was declared closed at 11.45, but it was 12.30 before members dispersed, all having done justice to the good things provided in the way of refreshments, and loud in their thanks for a most enjoyable evening.

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Garden Suburbs and Villages.

NOWADAYS when travelling by motor car, or the more democratic motor 'bus, is so readily available, it is not surprising that increased attention is being given to the subject of garden suburbs, and villages, &c. We have just received a copy of a book, entitled "Garden Suburbs, Villages and Homes," Summer Number, 1912, which contains much valuable information presented in a most interesting form. It has been edited by Mr. W. H. Brown, well known as an old-time motoring journalist, who contributes an article on the story of "Co-Partnership Housing," and there are a number of other practical articles by various experts. The book is well illustrated, and published at sixpence net, or ninepence post free, by Co-Partnership Publishers, Ltd., 73, Southampton Row, London, W.C.



The King and Queen arriving at Caerphilly Castle with the Marchioness of Bute last week. Here they inspected many interesting spots.

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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

61.

PROLONGING THE LIFE OF METAL FILAMENT LAMPS.—Has it ever occurred to you that metal filaments of electric side and tail lights have the nasty habit of breaking almost immediately after the lamp has been lit? Some time ago this happened to me three times in one week, and in all cases the bulbs had not been in use for longer than one week. Of course I put it down to a bad batch of bulbs, but when I complained about them to the electrician who had supplied them, he assured me that the breaking of the filament is not due to any fault in the construction or the quality of the bulbs. They were, he said, the very best procurable, and judging them by the price he charged they ought to be.

He advised me, when going out at night, to switch on the lights three or four minutes before starting up the engine, and since following his counsel I have certainly not broken another filament. It seems that the moment of lighting up constitutes some kind of critical period for the metal filament to which they are liable to succumb if the vibration of the engine is added to the sudden passage of the electric current. If, however, the lamp is lit a few minutes before the engine is started, that critical period is over when the vibration sets in and the filament, being then in an incandescent state, is able to successfully withstand the vibration.

This explanation seems to me quite feasible, and it is confirmed by the fact that I have not broken another lamp since I carried it out. I have been using the same make of bulbs before and after the breakages, and it would be interesting to hear whether other chauffeurs have had similar experiences.—"*F.E.L.*"

62.

DANGERS OF DRIVING MIRRORS.—For a number of years I have used driving mirrors on all my cars, because having a good deal of town-driving to do I found that they were a great convenience and help to the driver, who by their aid can see without turning his head whether a vehicle is about to overtake him. For this reason, and for the fact that when once properly set they do not require any attention beyond cleaning, I always considered them an entirely unmixed blessing. The other evening, however, I found that under certain circumstances they constitute a considerable source of danger. While returning to town one dark night at about eleven o'clock along the Bath Road, and keeping a sharp look-out for the numerous market-garden carts that seem to swarm this road between eleven and one, I was almost blinded by two sudden flashes that followed each other in quick succession, and I narrowly escaped turning the car over into the ditch. The idea of an explosion went through my mind for a second, but there was neither sound nor fire, and the car kept on running well. As soon as I slowed down to investigate, I was overtaken by a big car carrying a pair of glaring headlamps, the light of which had been caught by my driving mirror, and deflected into my eyes. Owing to the presence of the market-garden carts, the big car had not had a chance of passing me on the off side, and when I drew to the near after overtaking the carts he came out from behind, and the sudden glare of his lamps reflected by my mirror looked exactly as if two huge masses of flames were shooting out of the ground.

Ever since I have made it a rule to place one of my lamp covers over the driving mirror when lighting up. One such narrow escape is enough to last me a lifetime. —*M. Aiden Head.*

63.

TAKE CARE WHEN FILLING DASHBOARD-TANKS.—Last week a friend of mine had a very narrow escape from having his car on fire. He had just finished filling up the petrol-tank, which is under the scuttle-dash. When he took the funnel out of the filler there was a flash, and a huge flame shot up from the tank. Had it not been for the prompt action of a man standing near, who, quick as lightning, choked the flames by putting his cap over the filler-opening, very serious damage might have been done. We did not find the cause of the conflagration before we had pushed the car out of the building; nobody was smoking, and there was no fire or light anywhere near the car. My friend had been cleaning and trimming his paraffin side-lights earlier in the morning and, as usual, after putting the lamps back on the brackets, had lit them to see that they were burning all right. For some unexplained reason, he had forgotten to blow out one of the lamps, and it being daylight nobody noticed that the lamp was burning. When he took out the funnel after filling his tank a drop of petrol must have fallen on the lamp and caused the flare.

Fortunately, no damage was done beyond a burnt cloth cap, but we all learned a lesson, and by writing this for your Chauffeurs' page, I think other chauffeurs may be saved a very nasty experience.—*F. E. Lane.*

MAXIMS.

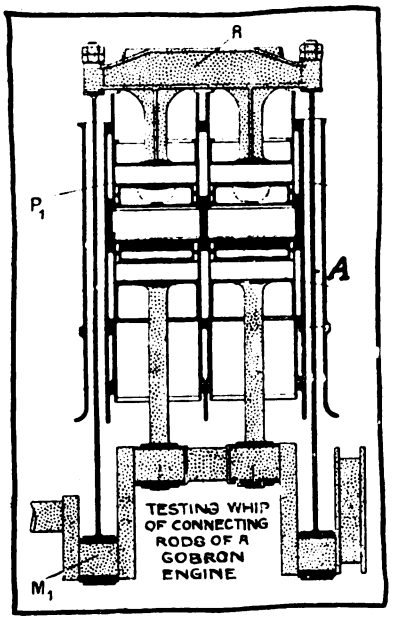
If you have to resort to a makeshift in order to overcome trouble on the road, do not fail to effect a proper and workmanlike repair immediately on your return home.

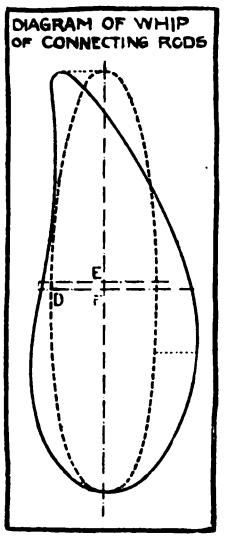
Don't lose your temper when you are fogged, light your pipe. Leave the job alone for a minute, you will unravel the mystery all the easier with a calm mind.

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FOREIGN MISCELLANY.

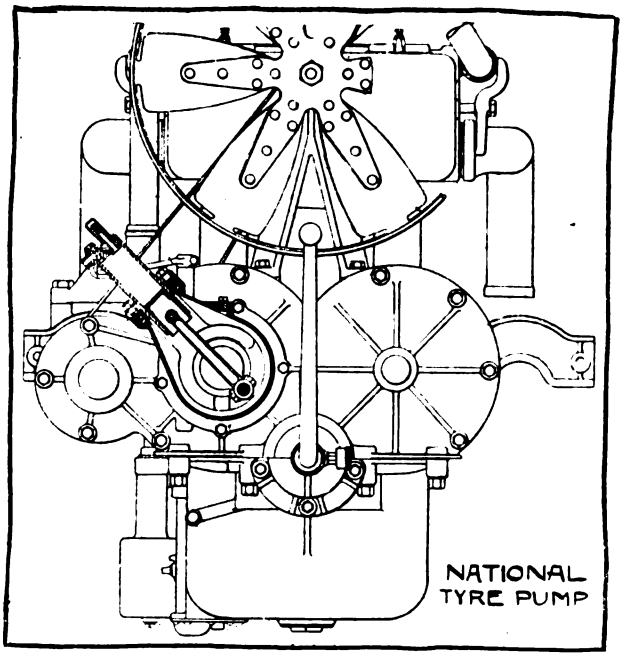
The whip of connecting-rods.—The cross-section adopted in the design of connecting-rods (either tubular or H section) is that which will resist the whipping action most thoroughly, but in spite of this the evil can be avoided only partially. Thus in a certain engine where a clearance of



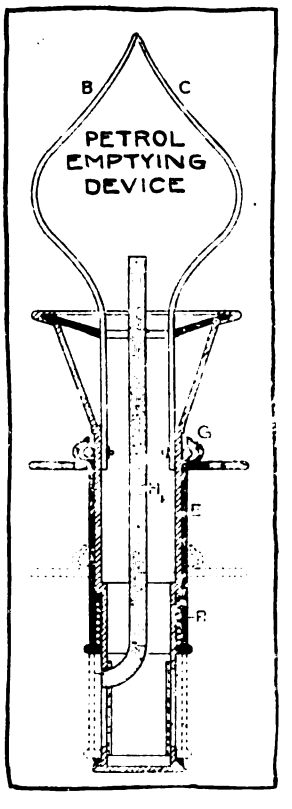


8 mm. had been provided between the connecting-rod and the lower edge of the cylinder, it was found that all went well up to a speed of 2,200 r.p.m., but when this was exceeded the connecting-rod came in contact with the cylinder-edge and demolished the cylinder. Some experiments were made in the Gobron works as to the extent of this whip; in the engine tested, of which we give a diagrammatic cross-section, a tracing-point was fixed to one of the outside connecting-rods at A, and a series of diagrams taken at different speeds. The normal figure traced by this point would, of course, be an ellipse (*see* dotted figure), but it was found that at high speeds the shape of this figure became distorted, until at 2,000 revs. it became as shown in the illustration (full lines). In *Omnia*, M. L. Lacoin points out that the significance of these diagrams is not as great as might at first sight appear, as the connecting-rod from which they are taken is very much longer than the ordinary one, its real length being equal to the distance from the upper cross-head, R, to the crank-pin, M^1, while its virtual length is only from P^1 to M^1. In addition to this, the outside rods are very much lighter than the inside ones as they (the outside rods) work, for the greater part of the time, in tension and not in compression.

The National motor cars are fitted with an engine-driven tyre-pump. This pump is situated on the left side of the motor and in front of the exhaust cam-shaft gear-case. It is driven by a cone-clutch, which is thrown into engagement only when it is desired to use the pump. This clutch operates within the cam-shaft-gear, making a very compact construction. The clutch is connected with the crank-shaft of the pump, the piston of which is operated through a 5-in. connecting-rod. This piston is $1\frac{3}{8}$ ins. in diameter, and has a stroke of 3 ins. There is a check-valve in the top of the pump-cylinder, through which the compressed air is sent to the tyres. Air is admitted to the cylinder for compression through a small spring-seated



poppet-valve, which is also located in the cylinder-head. It is opened by suction caused by the downward stroke of the piston, the air entering through holes in the flat sides of the hexagonal nut which screws the valve-housing to the cylinder-head.—*The Automobile.*



To enable petrol tins to be emptied rapidly, the small fitting reproduced herewith has been introduced in France. The two springs, B and C, are forced into the opening of the tin and serve to retain the instrument in position. The lower end of the main tube has a number of openings in it, but which are normally closed by means of a second sliding-tube, E, which is retained in that position (*see* dotted lines) by the spring, R. When it is desired to empty a tin of petrol the apparatus is fixed to the tin, and the latter turned upside down; the petrol, however, will not flow until the sliding-sleeve has been drawn back, when it can be fixed in that position by means of the bayonet-catch, G. The tube, H, is intended to allow air to flow into the tin to replace the petrol as it runs out.—*Omnia.*

Industrial alcohol.*—By using alcohol in an alcohol engine with a high degree of compression (about 180 pounds

* Abstracts from Bulletin 32 of the U.S. Department of the Interior, on Gasoline and Alcohol Tests on Internal-Combustion Engines, by Robert M. Strong.

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per square inch, the fuel consumption rate in gallons per h.p. per hour can be reduced to practically the same as the rate of consumption of gasoline for a gasoline engine of the same size and speed.

An alcohol engine is as adaptable to commercial requirements as a gasoline engine, except that with the present types of carburettors the same increased difficulty in starting and in operating at very low speeds is experienced as for a gasoline engine when alcohol fuel is used. The adaptability of alcohol is such, however, that this difference, which is due to ineffective vaporization, is not necessarily permanent.

When alcohol is used in a gasoline engine with the maximum degree of compression for gasoline, the available h.p. of the engine is increased about 10 per cent. An alcohol engine with the maximum degree of compression for alcohol will have an available horsepower 30 per cent. greater than a gasoline engine of the same cylinder size, stroke and speed. Owing to the higher explosion pressures, however, an alcohol engine should be built heavier than a gasoline engine, but the weight per h.p. may be less.

Some gasoline engines may be so changed that a sufficiently high compression pressure is secured to make it possible to reduce the consumption of alcohol in gallons per h.p. per hour to an equality with that for gasoline before the engine was changed; the change, however, precludes the further use of gasoline, as it cannot be used satisfactorily with compression pressures much in excess of 70 to 75 pounds per square inch above atmospheric.

The degree of compression may be most easily changed by lengthening the connecting-rod in an engine which is not counterbored and in which the shape of the clearance space is such that the piston will not strike the cylinder-head or valves.

If the cylinder is counterbored, or if there is not sufficient room at the head of the cylinder to allow the piston to travel back far enough to increase the compression pressure to the amount desired, a new cylinder-head should be cast with smaller clearance space.

Considering only the heating values of gasoline and alcohol, it is obvious that, if other factors are equal, the relative consumption of alcohol and gasoline will be inversely proportional to their respective heating values. The low heating value of denatured alcohol, which corresponds very closely to 94 per cent. by volume ethyl alcohol, will average about 10,500 B.t.u. per pound, while the low heating value of 0·71 to 0·73 specific gravity gasoline will average about 19,100 B.t.u. per pound. The comparison gives a consumption-rate ratio of 1·8 to 1 by weight for a thermal efficiency ratio of 1 to 1. In actual operation, however, where gasoline and alcohol were each used in the same medium-sized (10 to 15-h.p.) stationary gasoline engines without change of compression or speed, and the operating conditions, including load, were limited to the best possible for each fuel, a ratio of alcohol consumption to gasoline consumption in pounds per brake h.p. per hour was obtained as low as 0·98 to 0·59, equivalent to 1·66 to 1 by weight, or 1·45 to 1 by volume, with a thermal efficiency ratio of 28 to 26 per cent. (based on the low heating value and indicated h.p.), or 1·1 to 1. By raising the degree of compression from that best for gasoline (about 70 pounds per square inch above atmospheric) to that best for alcohol (about 180 pounds per square inch above atmospheric) the consumption-rate ratio was further reduced and a ratio of 0·7 to 0·59 pound per brake h.p. per hour, equivalent to 1·2 to 1 by weight, or 1 to 1 by volume, was obtained with a thermal efficiency ratio of 39 to 26 per cent., or 1·5 to 1. —*The Automobile.*

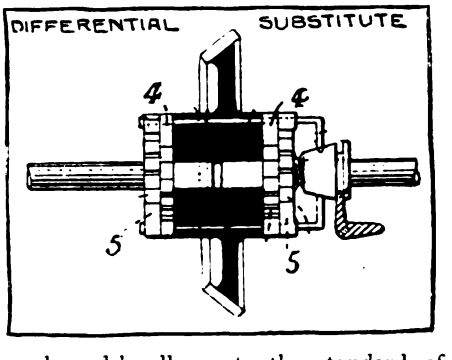
The earliest design for a motor car has been unearthed from a manuscript in the München Royal Library. The author is an Italian of the name of Giovanni Fontana, an engineer, and the approximate date is 1420. The first illustration shows the frame of the vehicle and its axles, while the second represents the complete car, with its mode of operation; the writing refers to the number of teeth to be employed for the proper transmission of the motive power; the upper drum is to have 19 ribs, while the lower (lantern) wheel should have 27; the large gear-





wheel is to have 141 teeth. The vehicle was probably intended to bring the then more or less new fire weapons close up to the walls of a besieged town. The text is in cipher.—*Allg. Automobil Zeitung* (Berlin ed.).

A substitute for the differential is a thing, perhaps desirable in theory, but hard to obtain in practice. We reproduce an illustration of a French idea. The two shafts are driven from the central crown-bevel by means of pawls, 4, 4, for forward, and 5, 5, for backward motion.



Though crude and hardly up to the standard of design prevalent in the modern motor car, some such a device might prove to work perfectly satisfactorily in the popular hybrid which the powers that be in their wisdom have named the "cycle-car."—*La Vie Automobile.*

Variable or fixed ignition?—The re-introduction of the "automatic" advance by the Eisemann Co., some two

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years ago, was the cause of a serious setback in the spread of variable ignition timing. These devices no doubt merit their increasing popularity as, not only do they take account of *one* of the variables involved, but they do this without requiring any attention from the driver and without adding much to the complication of the engine. In the *Zeitsch. des Mitteleurop. Motorw. Ver.* Herr Low points out that the automatic devices still leave the two other variable quantities, pressure and temperature, unprovided for, both of which have considerable bearing on the determination of the correct ignition point. The author recognises that one of the advantages which has assisted in popularising these devices is the greater facility with which an engine so fitted can be started, but he shrewdly remarks that the rapid adoption of this comparative innovation by the car builder is no doubt due to the fact that these automatic advance magnetos enable much greater silence to be attained in the driving mechanism, owing to the fact that these devices constitute a flexible coupling between the armature and the driving-shaft, whereby the noise of the gears is damped out and "chattering" eliminated.

The unnoticed forces in the factory.—Motor car factories may be disorganised, poorly-lighted, dirty places, or they may be well-organised, well-lighted, clean and orderly places. There are both kinds. The best products generally come from the well-organised, well-lighted, well-ventilated, and well-kept factory. There are good cars that come out of dirty factories, out of mussed-up factories, out of ill-lighted factories, but they are in the minority. The brighter, the well-ventilated, the orderly, and the clean factory sends out the best in the artisan's art.

The boy with the new suit of clothes and clean shoes goes at his work with a better spirit than when he has mussed-up clothes, and is dirty from collar to shoe lace. His environments become a part of himself.—*Motor Age.*

THE NAPIER END-TO-END TRIAL.

THE official certificate of the Royal Automobile Club, regarding the London-Land's End-John o' Groats-Edinburgh and London trial in the 59·9-h.p. six cylinder Napier car, which was run from June 3rd to 18th last, has now been issued. The bore and stroke of the engine was 127 mm., and the total weight of the car 4,369 lbs., the weight at the front axle being 2,204 lbs., and at the rear 2,165 lbs., while the load carried weighed 621 lbs. The gear ratio on top gear was 3 to 1, while the tyres were 895 by 135 mm. The wind area of the body was 10·3 square feet.

The route followed to John o' Groats was—London, Andover, Shaftesbury, Exeter, Land's End, Bristol, Gloucester, Preston, Carlisle, Lanark, Stirling, Perth, Blair Athol, Inverness, Tain, Bonar Bridge, Clashmore, Helmsdale, Berriedale Hill, Wick, John o' Groats. From John o' Groats to Stirling was a return over the same course, thence to Edinburgh and by the usual route to London.

The total distance covered was 1,928·75 miles. For this distance, with the following exception, the car was started and driven upon op speed. The driver on his first attempt to climb Berriedale Hill (from John o' Groats) found it necessary to change speed for three seconds. The car returned to the foot of the hill and climbed it successfully on top gear.

At the discretion of the driver, either the engine was stopped or the gear put in neutral when descending hills. The car was oiled and greased before the start each day.

With this exception, no work of any kind was done.

The road portion of the trial was covered (running time only) at an average speed of 19·74 miles per hour. The petrol consumed was 80·64 gallons, being a consumption of 28·918 miles per gallon, or 53·281 ton miles per gallon.

The weather was fine with some rain.

After the road portion of the trial, the car was driven to Brooklands track and timed over the flying half-mile. The speed obtained was 77·104 miles per hour.

It is claimed that this Trial was the most severe top speed trial yet held, and that it is the first time that Berriedale Hill has been climbed on top speed. The course taken is said to be infinitely more severe than the London to Edinburgh course, and Mr. Edge hopes at an early date to run a Napier car over this course by way of comparison.



Schweitzer, on one of the Sizaire cars, just after rounding the Neuville corner in the Grand Prix Race. The dog escaped!

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CORRESPONDENCE.

The Coupe de "l'Auto."

SIR,—When the Automobile Club de France decided to run the Grand Prix and Coupe de *l'Auto* Races concurrently, and over the same course, several manufacturers decided to refrain from entering cars for the latter race as they were of opinion that, in the eyes of the public, the Grand Prix cars would eclipse the performance of the smaller ones, whereby the publicity value of the contest would be greatly diminished.

A glance at the reports of the race in the daily press is sufficient to show that this is exactly what has occurred. In nearly every instance, the cars of the three-litre class are dealt with as if they were competing in the same race as the larger vehicles, and are "placed" 3rd, 4th, 5th, 7th, &c.

In justice, not only to the actual winners of the Coupe de *l'Auto*, but also to all those who entered for this race, it is only fair that a clear distinction be made in the order of merit of the cars in the two entirely distinct races. Thus Rigal's Sunbeam should be "placed" first, just as much as Boillot's Peugeot.

An invidious classification such as that referred to (I am not aware whether or not it is the one adopted officially by the Automobile Club de France), may seriously affect the popularity among entrants of a race which, it is to be hoped, will become as much an annual event as the Derby or the Prix du Jockey Club.

Cambridge. C. A. BRANSTON.

Experiments with Cheap Petrol.

SIR,—In view of the recommendation of the petrol companies that motorists should save *2d.* per gallon on their petrol by purchasing heavier spirit, at least during the summer, I thought it wise to carry out the following experiments with the following spirits on a 15-h.p. Napier, with standard Napier carburettor:—Shell, *1s. 6d.* per gall.; Crown, *1s. 4d.*; Pratt's *1s. 6d.*; Taxibus, *1s. 4d.*

I did this with the following experiments: the hill-climb from a standing start, the speed test with a flying start, both electrically timed.

	Shell.	Crown.	Pratt's.	Taxibus.
Speed over the half-mile (m.p.h)	50	50	51·14	50
Up Brooklands test hill (m.p.h.)	12·51	12·77	12·91	12·51
Miles to gallon (at 30 m.p.h.) ...	25·12	25·24	24·86	24·10

From this it will be seen that a Napier car for all practical purposes run as well on cheap spirit as it does on the more expensive.

For starting up: When the engine was warm in each case the starting up was equally easy, the pulls used in each case being as follows:—Shell, 1; Crown, 1; Pratt's, 1; Taxibus, 1. It will, therefore, be seen that the recommendation of the petrol companies to use the heavy cheap spirit at least for the summer, should be carried out and *2d.* per gallon saved by the motorist. I will have similar experiments made when the cold, damp weather starts, so as to see if heavy spirit can be used throughout the winter

Of course, I would not suggest that every car would do as well, as the Napier car has always been designed to run equally well with a considerable variation of grade of spirit, as my R.A.C. tests with benzol some few years ago conclusively proved.

S. F. EDGE.

Wheels in the Grand Prix Race.

SIR,—Wire wheels are so generally known as "steel wheels," and in France as "roue metallique" that the fatality which occurred to a spectator at the Grand Prix Race, may be in error set to the discredit of the wire wheel.

The accident was not due to a detachable wheel completely coming off its inner hub, but to the disintegration of the wheel itself near the hub, thus liberating the hollow spokes, rim and tyre. The wheel was not in any sense a wire wheel or a suspension wheel, but was a built-up steel wheel made after the pattern of a wood wheel.

Rudge Works, Coventry. JOHN V. PUGH.

The Hele-Shaw Transmission.

SIR,—I have read with interest your excellent article on Hydraulic Transmission. Whilst acknowledging and thanking you for the appreciation you express of the invention I should like to make use of the opportunity to testify to the valuable assistance I have received from Mr. F. Leigh Martineau, M.I.M.E., who for 3½ years has been associated with me in overcoming the many and various difficulties to which you have alluded.

H. S. HELE-SHAW.

Irish Touring.

SIR,—Tourists in Ireland will be pleased to hear that arrangements have now been completed which will result in the 31 miles between Killarney and Glengariff being completely steam rolled at a comparatively early date. This is a portion of the Kerry tourist route and includes some of the most beautiful scenery in the United Kingdom. In recent years the surface has been exceedingly loose owing to the motor char-à-bancs which took the place of the old metal tyred coaches. The latter were relied upon to roll in the metal which was deposited on the road at the beginning of the season. The change has resulted in this section of road being in a very loose condition and causing considerable damage to tyres. The difficulty in other touring districts in Kerry has not been so great owing to the superior nature of the road, but some of the worst sections will probably be dealt with later.

The steam rolling of the section of the road between the Tunnel and Kenmare, a distance of seven miles, was started at the beginning of the season and a portion of it has been completed.

As regards the 31 miles from the Tunnel to Killarney however, the district councils absolutely refused to contribute a penny to qualify them for the Road Board grant. At first sight their action might seem strange, but that there was some reason as is apparent from the facts. The district is an exceedingly poor one, the road maintenance at present costs about £10 per mile annually, and it is not expected that steam rolling would last more than six or seven years. It will be seen, therefore, that the proposition was not a paying one.

It might be urged, however, that the benefit to the district would be great on account of the development in touring traffic. That only applies, however, to the farmers living in the immediate neighbourhood of the towns and large hotels who would find a market for their produce. The bulk of the ratepayers would derive no benefit whatever, and consequently resented the idea of being specially taxed to provide touring routes which did not benefit them. This feeling was accentuated by the fact that most tourists only spend two or three days in Kerry and afterwards proceed to other districts in Ireland, their tours generally extending from ten days to a fortnight. Kerry, however, is the prime attraction. But for it many of these motorists would not visit the country, and hence the local ratepayers naturally objected to being rated higher to develop and convenience this through traffic.

Kerry as a whole may be looked upon as a great national park. There is nothing finer in the United Kingdom, and the Road Board recognising this offered a grant on exceptional terms, namely, that the district councils themselves supplied one-tenth of the money required, namely, £12,000 for the section of road between Killarney and the Tunnel. This the district councils refused to do. It was at this stage that I took the matter in hand, and appealed for subscriptions, in the hope that I could collect enough to secure the Road Board grant for the first twelve miles of road out of Killarney. Using my scheme as a lever, the county surveyor was able to persuade the district councils to vote £600 provided the other £600 was raised by voluntary subscriptions. This has now been accomplished after an immense amount of circularising and letter writing, and has consequently enabled the authorities in Kerry to qualify for the grant, so that in future tourists in Kerry will have between Glengariff and Killarney one of the finest stretches of road in the United Kingdom.

Dublin. R. J. MECREDY.

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Paris Reduces Licence Fees.

AT the last meeting of the Municipal Council of Paris it was decided to reduce the licence duties on one or two-seated motor cars from 50 francs to 31 francs, and those having more than two seats from 90 to 55 francs, while the proportional horse-power tax on cars lower than 37-h.p. is to be correspondingly reduced. It is hoped that the French Government will see its way to reduce the State taxes in the same way.

Motor Cycles for Irrigators.

ANOTHER example of the all-conquering march of the motor vehicle is that the Irrigation Department of Egypt is supplying motor cycles to its officials, as in tests which have been made it was shown that the radius of action of each official could be doubled at less cost, and under much pleasanter conditions, than if the horse were utilised.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Official.—The Secretary will be glad if those members who have inadvertently omitted to renew their subscriptions for the current year, will do so at their early convenience. Under the rules of the Association, members whose subscriptions are in arrears jeopardise their rights to free legal defence.

Road-side Telephone Service.—With regard to the inauguration of a roadside telephone service by the Association, of which members received particulars in the annual report just issued, every effort is being made to instal a considerable number of sentry boxes fitted with telephones during the present season. The institution of this telephone service—which will be quite free to members (except for trunk calls)—will, it is believed, constitute one of the most important advantages of membership of the Association, especially when all the main roads in the country are linked up in this manner. Periodically, complete lists of all the points where telephones have been, or will be, installed, will be issued to members.

Signs.—The Association, during the month of June, arranged for the erection of 128 road signs in various parts of the Kingdom. The majority of these signs are being put up near schools, to protect the school children using the adjacent roads. Nearly 100 of such "school" signs were put up last month, also 26 danger, 6 direction, and 6 village signs.

Speed Limits.—With reference to the proposals of the Hitchin local authorities regarding an application for a 10-mile speed limit, members will be interested in learning that the Association has been communicated with, and, as an alternative to the proposed application, has offered to assist in the erection of any necessary warning signs.

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CURRENT ITEMS OF INTEREST.

Sutton Bank being Overdone.

THE residents of Sutton are suffering the penalty of fame, and are complaining that the popularity of Sutton Bank as a testing ground for motor cars and cycles is rapidly becoming a nuisance. The authorities have had a special police-constable placed on the hill, and have threatened to apply for a speed-limit unless there is an improvement very shortly. The committee of the North-Eastern Automobile Association is appealing to secretaries of motor clubs to avoid using this hill for competition purposes whenever possible. It is pointed out that there are within reach of most motor clubs other hills quite as difficult from a sporting point of view, and are not so likely to cause inconvenience when used for competitions. Incidentally many clubs might get a good deal of fun by organising a search for a local hill suitable for competition.



A FINE EXAMPLE OF FLORAL DECORATION FOR THE CAR.—Mdlle. Arlette Dorgere's decorated automobile which obtained a First Grand Prize at the Fête de Fleurs, Paris, the design being built up to represent a floral aeroplane.

Motor Cars in Japan.

ACCORDING to a report by the British Acting Vice-Consul at Yokohama, Mr. O. White, on the trade of that district in 1911, there has been a notable increase in the importation of motor cars recently into Yokohama, and, within certain limits, the demand seems to be increasing. With Japanese roads and bridges in their present condition, however, large touring cars are out of place, and it would appear that the car most suitable to the market is a four-cylinder landaulette of the smallest size and power made. An essential is that it should be fairly high off the ground as the roads show great inequalities of surface in parts. In 1911 the United States took the largest share of the trade, sending 67 cars out of a total of 100. Of the remainder 13 cars were British, 6 cars French, and 14 cars German.

Ferry at Gravesend.

As a result of representations by the R.A.C., working in conjunction with the Kent and Essex Clubs, the London, Tilbury and Southend Railway have agreed to carry motor cars up to 9 p.m. on Sundays and week-days on the ferry between Tilbury and Gravesend. The arrangement will continue until the end of September, and a renewal of it next year will depend upon the use made of the facilities by motorists. The vehicle ferry boats usually cease running at 6 p.m.

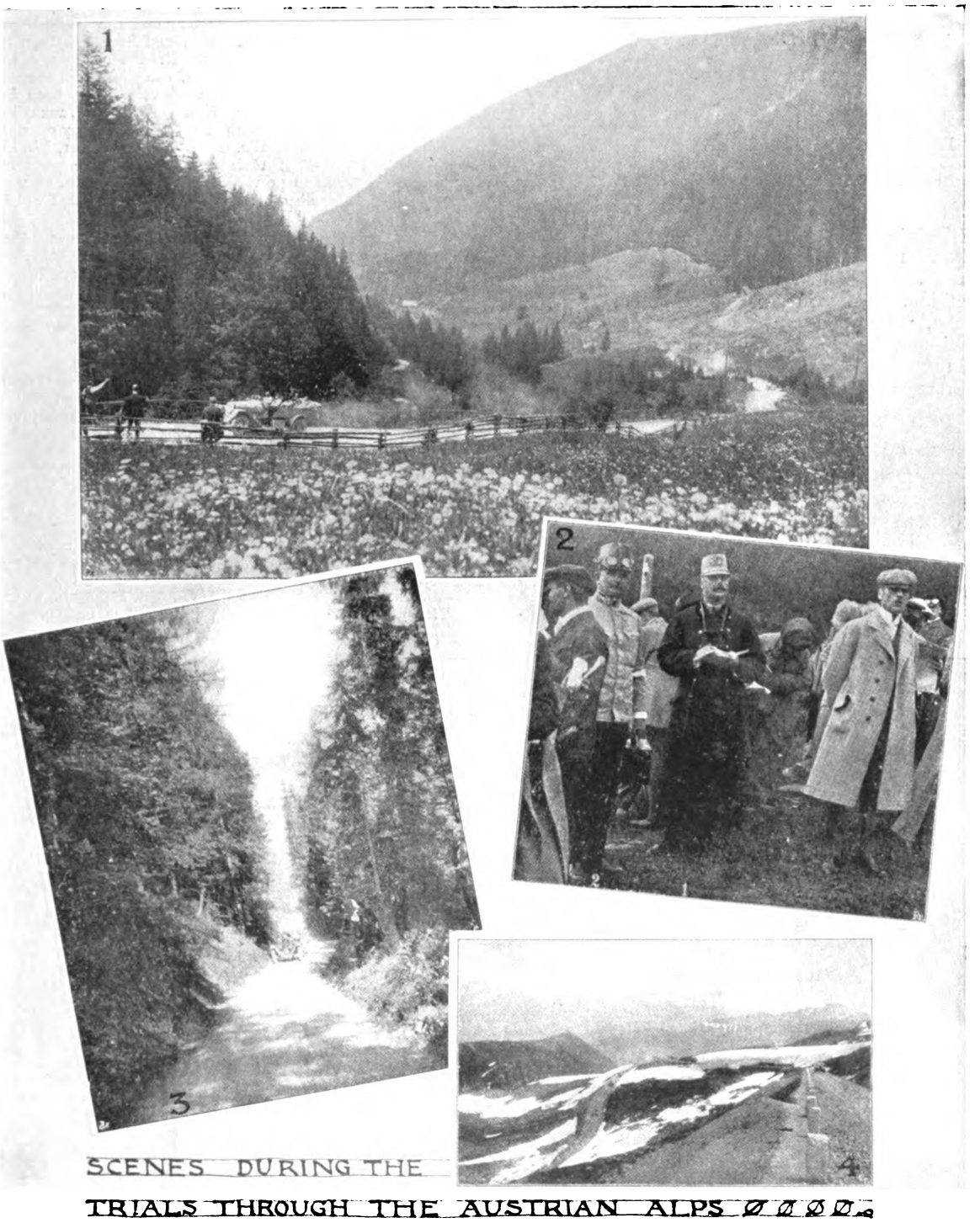
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International Touring Car Order.

AN amendment has now been officially made to the International Touring Order of the L.G.B. abolishing the charges of £1 or 10s. for registering the vehicle on entering Great Britain.

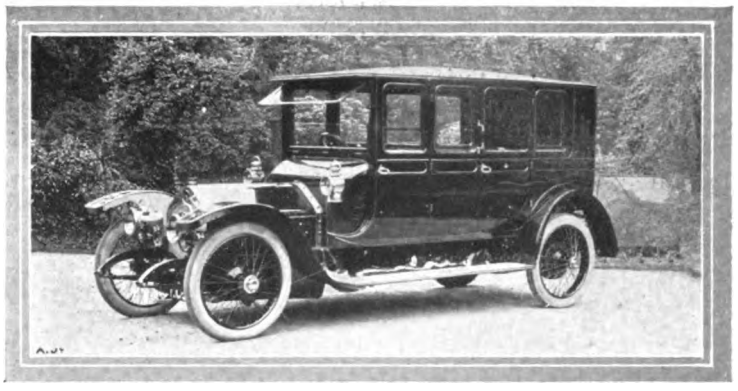
A Novel Gymkhana Event.

A MOTOR club in New York is arranging to hold some coasting contests for motor cars this summer over a toboggan course on Long Island, and many makers are said to encourage the plan, as it will demonstrate the free running of their respective cars. For those who have not a toboggan course at hand, it might be suggested that the idea could be carried out scientifically by investing five guineas in a Wimperis Accelerometer as sold by Messrs. Elliot Bros.



1. On the Niederalpel, giving a good idea of the climbing on this journey. This scene is very reminiscent of the famous picture of MacWhirter's in the Tate Gallery. 2. Archduke Leopold Salvator (1), under whose patronage the tour was run, and Lieut. Wolf (2), Vice-President of the Imperial Austrian A.C., on the Loibipass. 3. Travelling up the Kreuzberg. 4. Cars on the highest part of the new Jauffenpass road.

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MR. BRIAN CROSSLEY'S LATEST CAR—NATURALLY A CROSSLEY.—This is a 20-h.p., and has a most luxurious body fitted by Knibbs and Sons, of Manchester. The drive is in the interior of the saloon body.

Speed-Judging Instead of Gymkhana.

INSTEAD of the gymkhana arranged for Saturday next the Essex County A.C. will hold a speed-judging competition. The cars will assemble at Shenfield Common, Brentwood, at half past two, and after the competition the members and their friends will be entertained to tea by Lord and Lady Petre at Thorndon Hall, near Brentwood.

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PUBLICATIONS RECEIVED.

Motor Car Repairs and Upkeep. Gibbs and Co., Fawcett Street, Fishergate, York.

Catalogues.

"*Something Striking.*" *Testimonials to the C. A. V. Car Lighting Sets.* C. A. Vandervell and Co., Worple Way, Acton Vale, W.

The C. A. V. Dynamo Car-Lighting System. C. A. Vandervell and Co., Worple Way, Acton Vale, W.

Harvey Frost Vulcanizing Plants and Appliances. Harvey Frost and Co., Ltd., 39-41, Great Eastern Street, London, E.C.

Hansa Cars. Hansa Automobile Co., Ltd., Varel-Oldenburg.

ROUNDABOUT NOTES.

A VERY interesting little book has just been published by the Lanchester Motor Co. giving briefly the history of the development of the Lanchester car. Several of the details such as the suspension, &c., which were introduced by Mr. Lanchester are also dealt with. Anyone interested can obtain a copy on application to the Company at Armourer Mills, Montgomery Street, Birmingham.

MESSRS. THRUPP AND MABERLY, the well-known motor agents and coachbuilders of Oxford Street, London, W., have purchased the business of Messrs. Holland and Holland, and have also been appointed official repairers by the R.A.C.

AN instruction-book, compiled by a member of the staff at the Luton works, has just been issued by Vauxhall Motors, Ltd. Owners of Vauxhall cars will be supplied with a presentation copy on applying to the firm at 180, Great Portland Street, W., giving the number of their car. Considerable pains have been taken to provide effective illustrations, of which there is a liberal number, and to render the book of a thoroughly practical nature.

WITH much pleasure we recall the annual excursion of the employees of the Acetylene Illuminating Co., which took place on Saturday, June 29th. The employees, about a hundred strong, left Waterloo at 6.20, and arrived at Lyndhurst at 9 o'clock, where a cricket match was played by the First Eleven *versus* the Next Fifteen, resulting in a most decisive win for the Eleven. They then adjourned to lunch at the New Forest Hotel, Lyndhurst, after which the company were entertained by the directors with a brake drive through the New Forest, returning to dinner at 6 o'clock. The usual loyal toasts were proposed and duly honoured, and Mr. L. M. Fox, the general manager of the Company, who was in the chair, in response to the toast of his health, said it was owing to the loyal co-operation that he received from the staff that the Acetylene Illuminating Co. have made the immense strides that they had.

THE Krit Motor Co. have adopted European tyres as their standard, and are using 810 by 90 mm. Continentals.

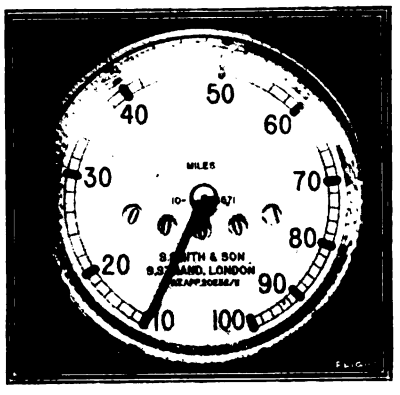
FROM Messrs. Leo Ripault and Co., 64A, Poland Street, W., we learn that Oleo plugs played a prominent part in the Grand Prix race, as they were fitted to the winning Peugeot, the Sunbeam cars, which finished 3rd, 4th, and 5th (1st, 2nd, and 3rd in the Coupe de *l'Auto*), the Excelsior 6th, and the Rolland Pilain 8th.



CARS AND MOTOR CYCLISTS AT STONEHENGE AT DAYBREAK ON JUNE 21st.—This day is the only one in the whole year that at sunrise a shadow is cast by the Heel stone across the Altar stone at Stonehenge. The Universal Bond of the Sons of Men makes this the occasion of a pilgrimage at daybreak by its members, and they are joined by a considerable number of Americans, a certain amount of ceremonial taking place, somewhat quaint in contrast to modern days' advances.

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THE winning Peugeot in the Grand Prix race was fitted with a Zimmerman Standard Honeycomb Radiator.



The Smith speed-indicator which performed so excellently on the team of Sunbeam cars and enabled the drivers to keep themselves thoroughly informed as to their progress and the way their cars were running.

NEW COMPANIES REGISTERED.

Clynnog and Trevor Motor Co., Ltd., 1, Brynmor Terrace, Clynnog, Carnarvonshire.—Capital £1,000, in 10s. shares.

Loughborough Road Car Co., Ltd., 1, Frederick Street, Loughborough.—Capital £5,000, in £1 shares.

Standard Petroleum Carburettor (Parent) Co., Ltd.—Capital £50,000, in 10s. shares. Under agreement with the Atlas Synd., Ltd.

Private Companies.

Associated Equipment Co., Ltd.—Capital £500,000, in £10 shares. Objects, to establish and carry on public motor, omnibus, tramway, and railway services, &c.

James Bridger, Ltd.—Capital £10,000, in £10 shares. Taking over business of a cycle and motor accessories factor carried on by James Bridger at Poplar Walk, Croydon.

Brown and Ramsay, Ltd., 134, Lower Baggot Street, Dublin.—Capital £3,000 in 1,600 pref. and 1,400 ordinary shares of £1 each. Mechanical and motor engineers, &c.

Cars and Motor Sundries, Ltd., 8, Southampton Street, Bloomsbury, W.C.—Capital £28,000 in £1 shares. First directors, A. E. Knight, O. A. Knight, E. W. Roberts, and W. T. Pritchard.

General Haulage Co., Ltd.—Capital £100, in £1 shares. Motor van, wagon, and other conveyance proprietors, &c.

Glenniffer Motors, Ltd., 187A, West George Street, Glasgow.—Capital £500, in £1 shares.

Goodwin's Motor Agency, Ltd., 31, John Bright Street, Birmingham.—Capital £3,000, in £1 shares. Acquiring business carried on by W. B. Goodwin at Victoria Square and John Bright Street, Birmingham.

IN connection with the new Stoneleigh (Knight sleeve-valve engine) car which the Deasy Motor Car Manufacturing Co., Ltd., of Coventry, are placing on the market, it may be mentioned that the price, £350 for the car complete with hood, screen, &c., includes a spare wheel and non-skid tyre, in addition to the four plain tyres on the road wheels.

THE Peugeot car, which won the Grand Prix, was lubricated with Vacuum Mobiloil.

THE Austin Motor Co., Ltd., now has its London showrooms at 479-483, Oxford Street, W., a building not unknown to motorists as the showrooms of Messrs. Holland and Holland. The premises have been transformed, so that they are, not without reason, claimed as the finest showrooms in London. Temporarily the telephone is Mayfair 5620, and telegrams should be addressed "Austinette, London."

ON the 27th ult., the Humber works were visited by a party of students from Rugby School. Divided into sections, each under the guidance of members of the Humber staff, they were conducted through the various departments of this huge factory. Considerable interest was taken in the different processes of manufacture of cycles, motor cycles, and cars, and the boys evinced considerable technical knowledge by their questions asked.

Graham Christie and Van Damm, Ltd., Empire House, Piccadilly, W.—Capital £348 10s., in 340 ordinary shares of £1 each and 340 deferred shares of 6d. each. Manufacturers of motor cars.

Rail and Road Traction, Ltd.—Capital £60,000, in £1 shares. Acquiring inventions in relation to (a) improved universal coupling for transmission shafts, (b) improvements in transmission mechanism for motor vehicle, and (c) improvements in pneumatic and like clutches. Under agreement with G. Constantinesco and the British and Colonial G. C. Synd., Ltd.

Rushmore Lamps, Ltd., 46, Brewer Street, Piccadilly, W.—Capital £20,000, in 7,500 6 per cent. cumulative pref. and 12,500 ordinary shares of £1 each. Acquiring business carried on by a company of same name.

Salmon Motor Co., Ltd., 40, Lichfield Street, Burton-on-Trent.—Capital £5,000, in £1 shares.

J. W. and E. Sowman, Ltd., Market Place, Olney, Bucks.—Capital £12,000, in 5,500 pref. and 6,475 ordinary shares of £1 each and 500 employees' shares of 1s. each. Acquiring business of ironmongers, motor and cycle agents and repairers, &c., as formerly carried on by the late W. Sowman and J. W. Sowman and E. Sowman at Olney and elsewhere as J. W. and E. Sowman.

Steiner and Co., Ltd.—Capital £15,000, in £1 shares. Acquiring business of dealer in motor and cycle accessories, &c., carried on by Clara Steiner at 58, Great Eastern Street, E.C., as Steiner and Co.

Talbot Park Motor Engineering Co., Ltd., 146, Wimborne Road, Bournemouth.—Capital £5,000, in £5 shares (400 Preference).

Transport Motor Construction Co., Ltd., 16, Serjeant's Inn, E.C.—Capital £10,000, in £1 shares.

BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

14,708. June 21st, 1911. Improvements in the Construction and Working of Double-acting Internal Combustion Engines. G. B. Holmes, 14, College Street, York Road, Lambeth, S.E. This invention relates to double-acting internal combustion engines, and consists primarily in improved means for controlling the admission of the combustible mixture into the engine cylinder. Fig. 1 is a vertical section through the engine cylinder and valve and pump. Fig. 2 is a section corresponding to Fig. 1, of the lower part of the engine. The supply of the combustible mixture under pressure to the engine cylinder, a, is controlled by a valve piston, b, working in a reciprocable valve cylinder, c, a differential movement being given to the valve piston in relation to its cylinder. The valve cylinder, c, works in a casing, d, and is formed midway with an inlet port, c^1, while at each end thereof is an outlet port, c^2. The casing, d, of the valve-cylinder is likewise formed with ports, d^1, d^2, midway and at each end, the central port, d^1, serving to admit the combustible mixture into the valve-cylinder, while the end ports, c^2, in the valve-cylinder, c, respectively serve for the admission of the mixture into the engine-cylinder. The ports, d^2, in the valve-cylinder casing serve for the escape of the waste products of combustion. When the engine-piston is at the upper end of its stroke, communication between that end of the cylinder, a, and the valve casing, d, is closed by the valve-cylinder, c, covering the upper port, a^0, the valve-cylinder is open to the fuel inlet, d^1, and the piston-valve, b, which is at the lower end of the cylinder, c, is just opening the fuel inlet, c^1. When the engine-piston commences its travel the valve-piston, b, in moving upwards cuts off the fuel inlet, c^1, while the valve-cylinder, c, which moves slower than the piston, b, commences to open fully the passage communicating with the engine-cylinder. As the engine-piston, a^2, advances downwards, the valve-cylinder continues its forward movement at a slow speed, while the valve-piston advances at a quicker speed, forces the fuel into the engine-cylinder through the port, a^0, until it overtakes and closes its outlet, c^2, from the valve-cylinder, the inlet, c^1, of which is now closed. The fuel having thus been displaced or forced into the engine-cylinder, the valve-cylinder advances, together with the piston, b, and closes the fuel passage communicating with the engine-cylinder. At this stage the port, a^0, is closed by the cylinder, c, and the port, c^2, in the latter closed by the piston, b, thus effectually preventing back-firing. The engine-piston has now advanced to a position in which the crank-pin is over the dead centre and ignition of the fuel now takes place. Fig. 1 shows the positions of the engine-piston and

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the valve in the positions they occupy shortly after the commencement of the working stroke. As the engine-piston advances in its working stroke the products of combustion remaining in the cylinder from the previous charge are forced out through the lower cylinder port, a^0, and through the port, d^2, at that end of the valve casing towards which the valve is now moving. The valve-piston and its cylinder move together and at the same speed during the working stroke of the engine-piston; the valve-piston being at the rear end of its cylinder. The inlet port, c^1, in the valve-cylinder reaches the fuel inlet, d^1, in the casing at about the midstroke of the piston, a^2, and commences to admit fuel

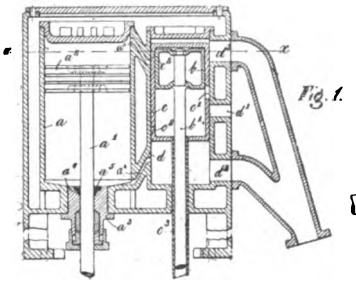


Fig. 1.

into the valve-cylinder. When the engine-piston reaches the end of its working stroke, which extends practically to the bottom of the cylinder, the valve-piston and its cylinder are in the position to supply fuel to the opposite end of the engine-cylinder, and the cycle of operations is repeated to drive the engine-piston from the opposite side. The piston-valve, b, is connected by means of a rod, b^1, to a crank, b^2, provided on the crank-shaft, g, The valve-cylinder, c, has a sleeve, c^3, which encloses the spindle of the piston-valve, and is connected by means of a rod, c^4, to a grooved cam, d, mounted on the crank-shaft, g. The crank, b^2, which operates the piston-valve is set at an angle of about 80° to that of the main crank, g^2. The pump, i, is between the cylinder, a, and the crank-shaft, g, Fig. 2, the connecting-rod, g^1. being attached to the compressor-piston, i^1, to which is also attached the rod, a^1, of the piston, a^2, in the cylinder, a. The piston-rod, a^1, works in a stuffing-box, a^3, provided on the cylinder, a, and furnished with metal packing rings, a^4, which are adapted to contract. June 12th, 1912.

13,270. June 2nd, 1911. An Improved Internal Combustion Engine. D. McCrorie Shannon, 9, Edward Gardens, Crookston, Paisley. This invention relates to internal combustion engines of the two-stroke cycle type, in which air is compressed in an annular compression-chamber by a differential piston, and thereafter passed into the working cylinder to scavage the burnt gases. In this invention the air, compressed by the differential piston in the annular compression-chamber, is first delivered to a jacket or chamber surrounding the cylinder, having a restricted passage-way through which the air flows in contact with the outer surface of the cylinder so as to cool the latter. Fig. 1 is a vertical section of the engine. The piston is differential, or of stepped form, the central portion, 1, forming the working face, and the annular enlarged portion, 2, working within the compression-chamber, 3, acts as a pump to compress air for scavenging the working cylinder, 4. As the piston reciprocates air is drawn into the annular space, 5, between the end of the working cylinder and the annular-piston, 2, through automatic lift-valves, 6, arranged on the stepped part, 2, of the piston. These valves are each made from a thin plate, 6, arranged over holes, 7, and the lift of the plates, 6, is limited by the shoulder at the top of a circumferential groove, 8, turned in the piston. The air is discharged from the annular space, 5, on the upward stroke of the piston, through automatically-acting valves,

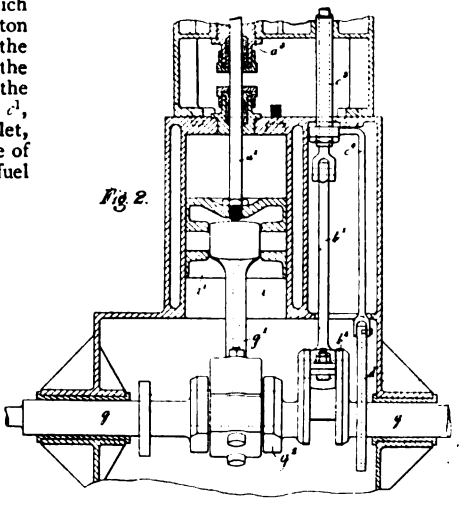


Fig. 2.

9, into a jacket space around the working cylinder, 4. The air is stored in the jacket space, 10, around the bottom of the working cylinder, and in the space, 11, around the top of the working cylinder, the central portion, 12, of the jacket being close to the cylinder so as to leave a restricted passage-way 12*a*, from the space, 10, to the space, 11. When the air is discharged from the annular space, 5, about one-half of it flows along the jacket to fill space, 11, and the remainder fills space, 10, and again when the pressure in the cylinder falls, owing to the

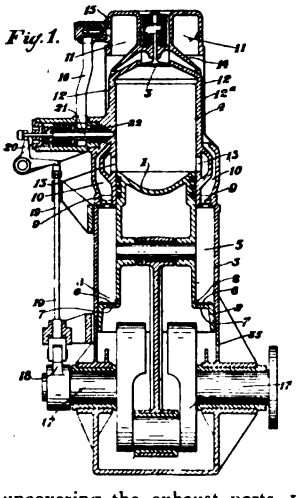


Fig. 1.

piston uncovering the exhaust ports, 13, an automatic spring-valve, 3, in the upper end of the cylinder, 4, opens, and the air flows from both spaces, 10 and 11, into it. There is consequently a double flow of air through the space, 12*a*, at each revolution of the engine. As this space is narrow, the air as it passes over the cylinder attains a high velocity, and gives a most effective cooling action. The part, 12, may be made of sheet metal. A conical cover, 14, is provided close to the top of the cylinder, 4, so as to give the air a high velocity over same, and effectively cool it. Communicating by means of a spring-loaded non-return valve, 15, with the jacket space, 11, is an air-pipe, 16, leading to a mechanically-operated valve device by means of which the charge is admitted to the explosion-chamber, this device being operated from the main crank-shaft, 17, by means of a cam. 18, push-rod, 19, and bell-crank, 20. The liquid fuel is pumped from the supply-tank by means of a measuring-pump having a variable stroke, so that the supply of fuel may be regulated to suit the requirements. The liquid fuel is delivered to this valve, which has a stem, 21, having thereon a series of finely-perforated ring-discs, 22, through which the liquid fuel is forced by means of the compressed air supplied by the pipe, 16, and is delivered to the combustion-chamber, 4, in a finely atomized condition, and mixes with the air therein during the compression stroke, at the end of which stroke ignition takes place in the usual manner. The crank-casing, 3, has an air admission opening, 35.—June 12th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published June 27th, 1912.

10,462. E. SHOULS AND H. E. FLETCHER. Gas turbines.
10,563. J. A. GILES. I.C. engine.
11,001. E. P. M. JERRARD. Transmitting or converting speed and power.
11,002. E. P. M. JERRARD. Hydraulic clutches.
11,837. J. A. HOWARD. Speed-indicator and controller.
13,270. D. M. SHANNON. I.C. engine.
13,370. J. BYRON. Carburettors.
13,544. L. E. COWEY. Suspension.
13,633. J. E. F. CAMBESSÉDÈS. Magneto ignition.
13,788. DAIMLER MOTOREN GES. Arrangement of ignition and pumps.
14,708. G. B. HOLMES. Double-acting I.C. engines.
14,712. R. W. VINING. Motor vehicles.
14,805. CHARLES H. PUGH, LTD., AND G. F. BULL. Carburettors.
21,268. H. HOLZWARTH AND E. JUNGHANS. Gas turbines.
21,748. W. T. SMITH. Wheels.
25,959. S. DIAMANT, M. JELLINEK AND JELLINEK-MERCEDES. Rotary I.C. engines.
27,964. W. SIMONS AND W. H. LAKE. Clutches.
29,007. G. A. BISHOP. Clutches.

Published July 4th, 1912.

13,524. A. SCHMIDT. Spark-plugs.
13,545. SOC. ANON. DES AUTO. DELAUNAY-BELLEVILLE. Hydraulic change-speed gear.
13,647. D. NETTENSTROM. Variable-speed and reversing-gear.
13,769. G. L. M. DORWALD. Two-stroke I.C. engines.
13,811. G. GAMBEL. Regulating I.C. engines.
13,853. C. S. GOBY. Valve gear.
14,250. G. P. MILNES. Resilient wheels.
14,293. J. B. KING. Fixed radial-cylindered I.C. engines.
14,411. A. C. FROST. Detachable wheel rim.
16,828. H. G. LONGFORD AND W. A. CLARK. Ignition-plug terminals.
17,061. A. R. BELLAMY. Electric ignition.
17,394. F. H. HEADLEY. Spring mountings.
17,651. WOLSELEY TOOL AND MOTOR CAR CO. AND A. J. ROWLEDGE. Change-speed gear.
19,802. D. MCERLANE. Starting device for I.C. engines.
21,458. F. W. HUDLASS. Shock-absorbers.
21,500. C. R. MINOR. Transmission gear.
22,438. B. MAUVILLIER. Carburettors.
25,373. R. A. MOORE. Non-skid.
25,475. M. FISCHER. I.C. motors with slide-valve action.
28,208. J. I. DUCHATEAU. Spring wheels.

Applied for in 1912.

Published June 27th, 1912.

1,152. E. A. RUNDLOF. I.C. engines.
2,579. A. BESSET AND R. DE BELAIR. Elastic wheels.
4,512. M. WOLFF. Rims of wheels.
7,277. J. C. HOWELLS. Spring wheels.
8,614. L. P. C. J. JACQUET. Spring suspension.

Published July 4th, 1912.

2,740. A. SANCHEZ AND C. BARADAT. Rotary I.C. engines.
3,946. J. GEISSLINGER AND E. SCHLURICK. Magnetos for lighting.
7,025. E. G. OWEN. Spring wheels.
7,428. C. F. KETTERING. Electric ignition.
7,430. C. F. KETTERING. Electric ignition.

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The AUTO
-MOTOR JOURNAL
The Motorist's Journal and Directory.

No. 601. (No. 28, Vol. XVII.)] JULY 13, 1912. [Weekly, Price 3d. Post Free, 3½d.

ROYAL VISIT TO HENLEY
THE MOTOR ENCLOSURE.



The motor enclosure at Henley on Saturday last during the Royal visit.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

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Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

"The Badge that will get you Home."

Healthy competition is an excellent thing, and makes for much greater efficiency of service than where the element is absent. We are more than glad to note that since the R.A.C. and the A.A. tacitly agreed to bury the hatchet—at least, we gather from speeches made in public that that is the agreement—the spirit of emulation has been abroad, and each seems to be trying its level best to give better and more far-reaching benefits to its membership. Last week we dealt with the new roadside telephone scheme of the A.A. Now it falls to us to record a fresh breaking out of activity by the R.A.C. General Committee. Briefly, the new scheme is to furnish every member or associate of the Club who carries the official Club badge on his car with a disc or token which will be of service to him if he is unfortunate enough to be stranded by the roadside on account of a mechanical or other breakdown of his car by providing him with a relief car to get him and his party home, and at the same time to indemnify him against the cost of hiring this relief vehicle. The *modus operandi* of the scheme is simply that on the occurrence of a breakdown, the owner of the disc will send it by the first available messenger to the nearest R.A.C. repairer, who will send a relief car to tow or otherwise convey the party, within a reasonable distance, either to their homes or to the most convenient railway station.

Fortunately cars do not often break down nowadays, but when they do the consequences may easily be more serious than in the days when the motorist looked for a mechanical stoppage every ten miles or so. Then no one dreamed of making business or social appointments to be kept by car; but now we are so accustomed to the reliability of the vehicle that we make our appointments to be kept by road, and expect to run with the certainty of the railway. Therefore, when, as does occasionally happen, the car lets us down, the consequences, as we have said, may be the more serious or annoying because of the very trust we have placed in the car's ability to take us out and home. Any scheme, therefore, that will help to minimise the trouble and annoyance of breakdowns must deserve well of the motorist, and we are pleased to note that the Club is preparing to grapple with the problem in such a practical manner.

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Motor 'Buses and Bridges.

An interesting case was heard at the Highgate Police Court the other day, which raises a most important question regarding road bridges and their fitness to carry modern traffic. The Great Northern Railway Company summoned the L.G.O.C. and one of its drivers for having driven a motor 'bus over Crouch End railway bridge contrary to the provisions of the Heavy Motor Car Order of 1904. It appeared from the evidence that there was a notice exhibited on the bridge to the effect that it was insufficient to carry a weight of more than five tons—the usual sort of notice that can be seen on bridges all over the country—while the laden omnibus weighed over six tons. Almost as a matter of course a conviction was recorded, the result of which is that the residents of the district are suffering some amount of inconvenience by reason of the curtailment of their motor 'bus services.

We do not blame the railway company for their action, even though it would seem that they are willing to cause inconvenience to the public in order to score off a dangerous competitor. They are fully entitled to do what the law empowers them to do—to close their bridges to heavy traffic where they can allege them to be too weak structurally to safely carry the load. But the point

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is that Parliament should compel all bridge-owning authorities to render their bridges fit for modern traffic use. When the railway and canal companies obtained their Acts of Parliament, those Acts stipulated that bridges to be constructed over public highways should be sufficiently strong to carry the ordinary traffic of the districts. Unfortunately, however, there seems to have been no idea in the minds of the draughtsmen or of Parliament itself that the ordinary traffic of the districts would ever be any other than it then was. The dray and the farm wagon were the heaviest vehicles contemplated at the time, and no allowance was made for future change. The consequence is that we are rapidly getting towards the impossible. In most cases, bridges will just carry the heavy traffic with but little margin of safety, while hitherto authorities have not troubled much about contraventions of the strict letter of the law. Heavy vehicles habitually use bridges which are placarded as being too weak to carry them, and authorities have been quite content to let them do it without let or hindrance, relying on the law which lays the consequences of a breach at the door of the law-breaker for their remedy in case of accident. It cannot be contended that this is a satisfactory way of going on, and now that the example has been set we shall expect to see a great many more prosecutions for breaches of the Heavy Motor Car Order, especially regarding the use of highway bridges. The remedy is obvious—bridges must be strengthened and brought into line with the requirements of modern traffic, but that can only be done by means of an Act of Parliament. It seems to us that the matter is one for the C.M.U.A. to fight out in the interests of its members. We are aware that the question has had the attention of that valuable organisation for several years past, but now that matters look like coming to a head, if the Great Northern example finds many imitators, it is certainly time to commence an active campaign.

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The Taxicab Danger.

We are pleased to read that Lord Russell has taken a practical step towards putting down a wickedly-dangerous habit of some taxicab drivers of turning sharply out from a cab-rank across the line of moving traffic, and on the wrong side of the road. Lord Russell summoned a driver for driving his cab in a manner dangerous to the people, and according to his evidence, the cab was driven from a rank in Lower Regent Street in such a manner that collision with Earl Russell's car was only avoided with the greatest difficulty. The defendant said that he had no recollection of such an incident, and had certainly never left a rank in the way described, and, in the result, the magistrate dismissed the summons, as Lord Russell, he said, might possibly have mistaken the number of the cab. The practice referred to is one which the police should put down with a firm hand. It is obstructive and dangerous to a degree, and withal totally unnecessary if drivers of cabs will only observe the recommendations of the Commissioner of Police as outlined in his circular of a year ago. In that circular the Commissioner points out that in leaving a rank to pick up a fare the cab should move out into the line of traffic proceeding in the way in which the vehicle is heading as it stands, and then take the best opportunity of turning in the required direction. Instead of observing this very salutary rule, the more general practice where the call is received from a point in rear of the vehicle is to suddenly swing straight out into the traffic stream, nine times out of ten without the slightest warning, and without any regard to the danger or inconvenience to other vehicles. Possibly the hint given by the magistrate at Marlborough Street, when in dismissing the case noted, he said that Lord Russell was quite justified in bringing the case, may have some effect.

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Huntingdonshire and its "Traps."

We are glad to see that the police tactics in that notorious county, Huntingdonshire, have aroused unfavourable comment from at least one of the Justices at Quarter Sessions. At the Sessions held recently Mr. J. N. Heathcote protested most strongly against the system of motor traps in the county. He did not think they prevented accidents, for comparatively there were as many accidents in trapped counties as in untrapped. Then there was no sort of uniformity or justice in the administration of the law. In some places magistrates imposed a merely nominal penalty, while in others the fine might be as much as ten pounds for practically the same offence. His own experience was that the motorist did not have a chance—he was practically always convicted, whatever the offence might be, and was never given the benefit of the doubt. Mr. Heathcote further suggested that heavy fines were imposed to alleviate the rates.

The Earl of Sandwich, chairman of the Standing Joint Committee, considered the regulations extremely satisfactory and very well carried out, although a young constable might make a mistake and be rather severe on a motorist. He warmly repudiated the suggestion that the idea of alleviating the rates by these fines had entered into anyone's mind.

In the name of all that is sensible, how can his Lordship of Sandwich maintain that the "regulations"—we take it he means the regulations laid down by the Standing Joint Committee for the guidance of the police—be extremely satisfactory when it is admitted that "young" constables sometimes make mistakes and are rather severe on the motorist. And what, will his Lordship condescend to tell us, does he mean by "rather severe"? Does he mean to infer that the young constable is more likely to commit deliberate perjury than his older confrere? Or does he mean that these boys in uniform to whom he refers are so excited when working their precious traps that they are incapable of differentiating between breach and no breach of the law. Now, perhaps his lordship does not know how the police of Huntingdonshire carry out the instructions of the Standing Joint Committee of which he is Chairman. Well, we will tell him. A short distance—generally a furlong in length—

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is measured out close to a town or village, but far enough outside to ensure that the prudent motorist who would presently slow down for the village will be caught exceeding the limit. Two bucolic policemen, armed with the usual cheap watch, are stationed there to time and another to stop the passing motorist, and then, *if the watch shows that he has exceeded the limit*, he is summoned for driving to the common danger. It does not matter in the least that there may be neither vehicular nor pedestrian traffic on the road at the time—the charge is always the same and conviction a certainty, while the penalties imposed are almost invariably savagely out of proportion to the real offence committed. Now, assuming that we have correctly sketched the Hunts method, will Lord Sandwich say what his apology for the youthful policeman means? As we view the matter, the policeman who habitually makes "mistakes" of the kind which affects the liberties and property of the King's lieges is not fit for his position, and should be got rid of before he has opportunity of doing irreparable harm to valuable reputations. Then, what does Lord Sandwich mean by being "hard on the motorist"? Police timing is a purely mechanical matter, and there can be no question of being hard on anyone, unless of deliberate intention. To put the matter quite plainly, we assume that Lord Sandwich and his Standing Joint Committee are aware that there is a lot of very hard swearing indulged in by the Huntingdonshire police in motor cases, and that he and his Committee are content that it should go on.

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Captain Murray's Bee.

In the early days of the Motor Car Act the representative in the House of Commons of the rabid anti-motorist was the member for Orkney and Shetland. If any futile question had to be asked or grotesque suggestion for restricting the use of the car to be made, Mr. Cathcart Wason was ready and willing to heave his huge bulk up from his seat below the gangway and proceed to amuse the House by his intense seriousness and the utter fatuity of his outlook on the motor problem. However, the mantle seems to have fallen from the shoulders of Elijah. Either Mr. Wason has himself become a motorist—we have a hazy sort of recollection of his being fined—and has therefore imbibed more sensible views, or he finds his knitting absorbs so much of his time that he has none to spare for such minor affairs as those involved in the relations between motorist and anti-motorist.

But, *le Roi est mort, vive le Roi*, and the new king seems to be Captain Murray, the member for Kincardineshire—and a most worthy successor he looks to be. Incidentally, it does seem passing strange that these Scottish members should be so solicitous of the welfare of dwellers in London. It will be remembered by readers of the AUTO. that it was Captain Murray who was responsible for the campaign against motor noises at night—in London. Now he has broken out in a fresh place by introducing a Bill to reduce the speed limit to sixteen miles an hour—in London, and, as a sort of afterthought, in every borough or urban district with a population of twenty thousand. In introducing this precious Bill Captain Murray submitted to the House that sixteen miles an hour in crowded thoroughfares was amply sufficient. Public opinion had been aroused by the numerous accidents caused by mechanically-propelled vehicles in London, and it was essential—hear the traffic expert from the wilds of Kincardineshire!—that the speed limit in the Metropolis should be uniform. What else is it?

Then the cloven hoof came through. "He hoped the Bill would also do something to mitigate the noise caused by the inconsiderate and excessive use of warning signals at all hours of the day and night." That seems to be the particular bee in the bonnet of the gallant member for Kincardineshire. Evidently he finds the change from his native heather, with its solitude broken only by the rippling of the mountain streams and the sough of the breezes, to the noise and bustle of London too much for his nerves. In that case his remedy is obvious. Instead of wasting the time of Parliament—though Heaven knows Parliament nowadays seems to exist specifically for the waste of time—with fatuous and needless Bills and diatribes against the motor vehicle and its users, let him betake himself back to his far northern constituency and peace. Or, if he must needs stay in London, it seems to be a case for a good nerve specialist.

Seriously, however, we cannot bring ourselves to see what useful purpose would be served by passing Captain Murray's Bill into an Act. In introducing it he made it a great point that the sixteen miles an hour is amply fast enough in crowded thoroughfares. We agree absolutely—in fact, we will go a lot farther than that and admit that in some thoroughfares and at some times of the day six miles an hour is not only very much too fast but is impossible. But even that is no argument for an arbitrary figure of limit. How would sixteen miles an hour work out in such places as we have noted, and how much safer would the public be on account of the mere fact that such a limit as Captain Murray's had been decreed? Education is a long process, but one of these days the lesson we have urged so long and so often, that danger is not in the main dependent upon speed, will be intelligently assimilated and the Captain Murrays will cease from troubling. One thing, fortunately, is pretty certain, and that is that there is very little probability of the Bill reaching the Statute Book

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R.A.C. Honours Racing Drivers.

AT a banquet given at the R.A.C. by the Club Committee on Thursday this week to the British entrants, drivers, mechanics, &c., in the Grand Prix and Coupe de *l'Auto* races, gold medals were presented to the drivers of the trio of Sunbeam cars, silver medals to the other drivers and bronze medals to the mechanics. The post-prandial programme included the cinematograph showing scenes during the race.

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An "Auto." Tour for American Visitors to England (see pages 814, 815, 816, and centre of paper pages).

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AN "AUTO." TOUR FOR AMERICAN VISITORS TO ENGLAND.

ENGLAND can only be seen properly by the motorist; its cities and towns are much as any other Western hives of industry, but its countryside is unique. The scenic beauty is of every type, from the massive grandeur of the Highlands to the picturesque prettiness of the South, and although the country is small in area, nevertheless the mesh of the network of its roads is so fine as to turn even a small district into an inexhaustible panorama.

There is an elusiveness about the problem of seeing England, which the American visitor is apt only to appreciate when the fascination of London has already worked its spell and the greater part of the available holiday has already been spent in the metropolis. You must plan your English tour at home if you would make the most of it, and you will find an infinite enjoyment afterwards if you do your reading before you start.

Some people regard England as a great museum, and flit from object to object, guide book in hand, forgetting the while that the very floor they walk upon is a mosaic of far greater human interest than any monument it may support. Well may those who travel by rail seek inspiration from a gravestone or a ruin, but you who go by car can see the very scenes of which these records are but index marks upon the roll of time. Yes, you lose the best of England if you fail to sense the essences with which old history has saturated our once virgin soil, to admire the simple beauty of Essex with the eyes of Constable, or to thrill on Culloden Moor with the heart of a Scot.

To see everything is difficult even for an Englishman of leisure, it is impossible for the visitor of limited time. It is essential that you should tour with discretion if you would do even a fraction of all that is best worth while, and only by taking pains in advance can you ensure the subsequent ease and enjoyment that it is your object to attain. Nothing, for example, adds so much to the pleasure of motoring as a good hotel. There are many such in England, but they want finding; if you do not know their whereabouts you may frequently select the poorest sort of accommodation while the best awaits you within a mile or two. Also, you need to know the districts and the places that are best worth visiting and within the possibilities of your limited tour. Mileages are deceptive in England, for if the roads are good they are also confusing, and few drivers know every part of the kingdom.

These things it is the object of the AUTO. to facilitate. Every week we publish a guide to the best hotels, places of beauty and interest, most important golf courses, &c., which is a veritable Baedeker in brief and is invaluable to the motorist. All our touring articles are accompanied by plans, and we have prepared and are now publishing in the AUTO. a special series of key maps, which we believe to be just what every motorist in England has so long required. The official maps of the country are perfect of their kind, but they do not tell the motorist the proper way to go, and the roads are so crooked and so numerous that the stranger is hoplessly confused without a key to the best route.

It has occurred to us, therefore, that American visitors to England might appreciate a concrete suggestion in the way of a circuit tour, the details of which they may plan at leisure in their own time before sailing or during the Atlantic voyage. It may be assumed that London is the immediate destination of every American once arrived on the English shore, and in London, therefore, we will assume that the party has duly hired a car wherewith to set out to see what the land has to show. Now the first thing that is evident, is that you can follow only one point of the compass at the same time; the question is, in which direction is it best to proceed first? Of course, there is much to be said for every road, but in this particular tour, which we have planned as an ideal tour for economising time while seeing nearly everything, we would certainly suggest that the car is taken over that famous old coaching highway that ultimately reaches the coast at Portsmouth. The Portsmouth road is one of the best all-round roads in England. It has character; long afterwards, when you have forgotten minor details, you will remember with the best of what remains your drive down the fine old Portsmouth road.

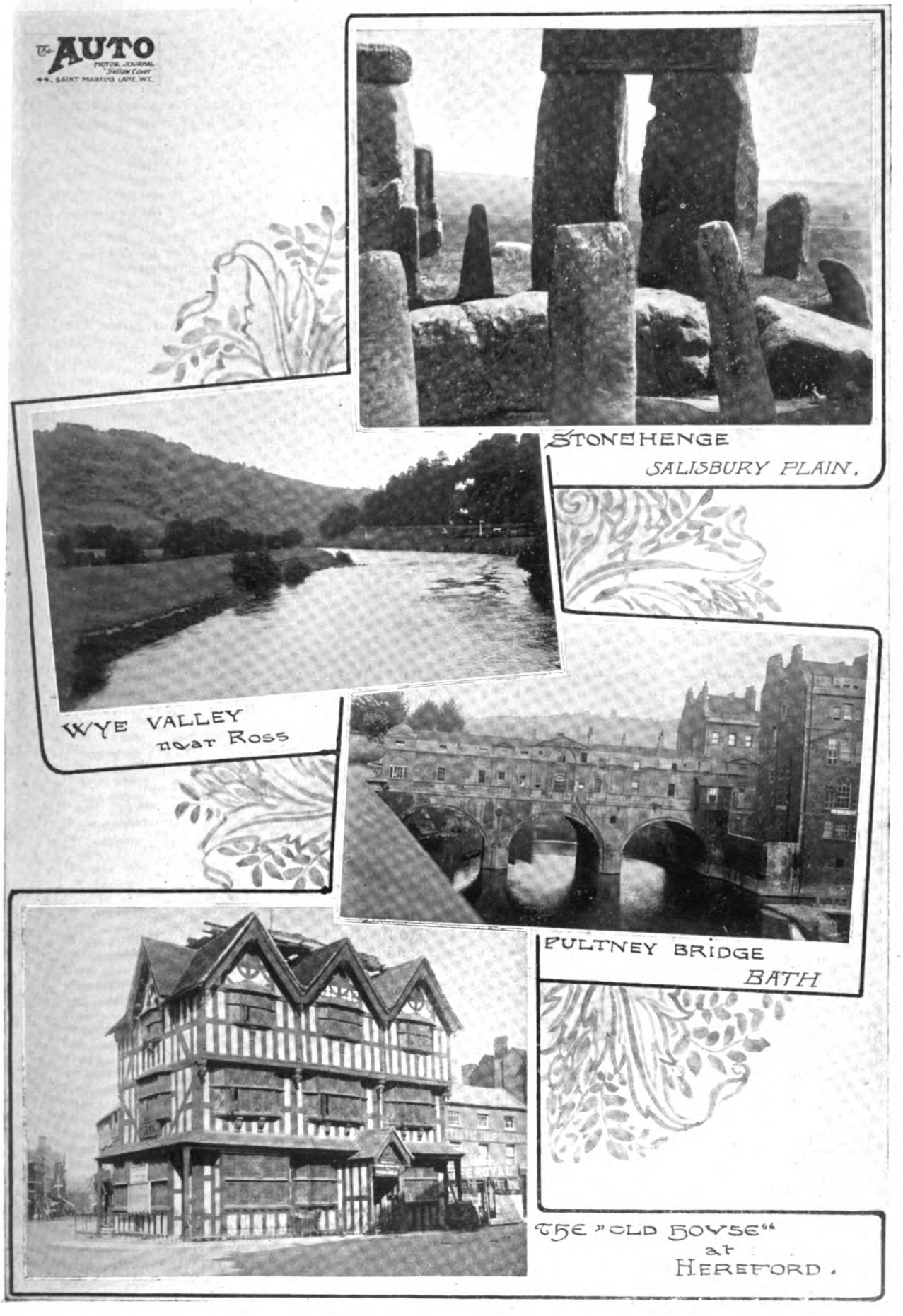
If you start late in the morning, you can have lunch at Wisley Hut or Guildford, but usually the plan is to start in time to reach Winchester for the mid-day meal, because at Winchester a halt will be desired in order to see the cathedral and college, besides various other old-world things of interest that the student of English relics will not fail to have studied up in advance. From Winchester it is a pleasant run down into the New Forest, where there is an excellent hotel at Lyndhurst, and we can assure those who have not been there that they will find it hard to drag themselves away from this charming district, which is also historic.

It is evident from the shape of England that the counties of Devon and Cornwall are inconveniently situated with respect to economical mileage. To go down into England's "big toe" is to pass through very beautiful country and to land nowhere; nowhere, that is from the point of view of the motorist who desires to make every halting place an efficient starting point for the next day's journey. You must leave out Devon and Cornwall, therefore, unless you have a great deal of spare time.

It will be convenient in briefly sketching this tour to assume for the moment that you do not stop in any one place for more than one night. That will give you a better indication of the minimum time occupied in actually travelling, and thus serve to show how much you can afford for "stopping over" in those places that are better worthy of a prolonged visit. Lyndhurst in the New Forest is certainly one of them, but for the moment let us suppose that on the second day you drive north-west through Salisbury to Bath, where, as a glance at the AUTO. Guide will show you, the Empire Hotel is most modern and up-to-date. Bath itself is, of course, a city of unusual historic interest, but again we must leave the visitor to find out elsewhere what he wants to know of it, although we would take this opportunity of saying that any of our readers, whether in America or England, who desire to be supplied with books relating to towns or districts that they intend to visit have only to write to us and we shall be only too pleased to make a selection for them.

From Bath, the objective is North Wales, but it is necessary to make a detour in order to skirt the Bristol Channel and the best route thus lies through Cirencester, Gloucester, Ross and Hereford, in which delightful old-world country town you would be well advised to put up for the third night. In Hereford you will naturally visit

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An "Auto." Tour for American visitors to England.

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the cathedral, and while there you should not fail to ask to see the famous chained library, which is one of the few that still exist. Herefordshire, particularly the Wye Valley, is essentially a country that will attract you to make excursions, and many there are that are worth making, as those who covered every inch of the district during the small car trials some years ago can vouch. But, we must proceed in accordance with our system and travel north through Leominster, Church Stretton and Shrewsbury to Llangollen, which name is pronounced in a way that resembles not the spelling in the least. Llangollen is a very small place but charming, and the Hand Hotel there has the most attractive outlook over one of those noisy kind of rivers that will keep you awake half the night listening to its incessant music as it cascades over the rocks and stones.

From Llangollen you take the great Holyhead highway into the Welsh mountains to a place called Pen-y-gwryd on Snowden where there is a good hotel and wonderful scenery. This we suggest as another halting place although the day's journey is short, but having brought you to Wales it is quite useless to ask you to come out again without at least one night's delay. From Pen-y-gwryd you go north to Bangor, and thence turn east along the coast through Colwyn and Abergele until you reach Chester, perhaps the most interesting of all English towns. And now after so much that has been beautiful you must perforce see something that will remind you that the world we live in, is not in itself made more attractive by the handiwork of man. Up through Warrington, Wigan and Lancashire, you will pass through the heart of some of our busiest industrial centres, and you must needs do so, because there is little to choose between one way and another, throughout the whole of the district that intercepts your progress to the North, and in these cases it is the shortest and most direct road that is usually the best. But at last you will come out to Kendal and run down on to the lake's side at Windermere, where we should advise you to stay at the excellent hotel at Bowness, which is built practically on the edge of the lake. This halt in Windermere makes the seventh night away from London, and of course it will be useless in actual fact to say the next day's run is to Carlisle, but such it is according to our little plan from which, for the moment you are allowed no time to see more of the lakes than you can view during the day's journey. As Carlisle is not very far away, however, you can as it happens spare some time at least in making a detour.

Carlisle is, as it were, the gateway to the North. Many motorists who leave London by the Great North Road, which itself runs up to Edinburgh direct, prefer to branch off so that they perform the latter part of the journey into Scotland *via* Carlisle. In any case the country north of Carlisle as you may see by glancing at a detail map is on the whole wild and in places desolate, but its very wildness gives you a new sensation and a foretaste of the ragged grandeur that Scotland itself remains to disclose. We would suggest that you make for Edinburgh from Carlisle by working across through Hawick and Galashiels, because you will naturally wish to make Edinburgh your starting point in Scotland just as you would naturally come to London from Liverpool on arriving in England. Edinburgh, therefore, is the ninth night. At Edinburgh you can cross the Firth of Forth by a ferry and proceed due north through Cowdenheath and Perth to Pitlochry, which will serve admirably as a stopping place for the night. From Pitlochry you continue north through Abbey Moor to Inverness and thus reach the most northernmost town of our proposed circuit and there you will probably find what is almost daylight through the greater part of the night.

A glance at a map of Scotland shows that the mainland is divided diagonally south-west from Inverness by the Caledonian Canal and the lochs that it joins together. The road that runs down by the side of Loch Ness past Fort Augustus to Fort William is on the whole, perhaps, the most beautiful in the whole tour, and we can wish you who may be taking this trip some day the pleasure of a perfect summer's day in which to see the view unspoiled. Fort William is thus the stopping place for the twelfth night. From Fort William the road runs south-west again to the Ballachulish Ferry, across which you can easily take the car, which is more than can be said of some of the Scotch ferries in the less frequented districts of this much cut-up country. Stirling will form the destination of the thirteenth day's journey unless you care to make a detour to Pardet. In Scotland you will find many hotels and you will find, curiously enough, that their location are indicated on the detail maps of the country. It is not easy to plan a tour through Scotland because the nature of the country and the disposition of the road renders an economical mileage somewhat difficult. Scotland indeed is a country that you should in some measure consider separately and to which you would be well advised to go for the purpose of making a special tour. From another point of view, however, the circuit that we indicate will serve admirably as a basis of a more extended trip for the reason that most of the additional mileage will consist of routes jutting out from and returning to the main points indicated. Scotland, it must be remembered, is alway crowded during July and August, and motorists who desire to travel in a casual way would be well advised to go there in June, which is an altogether charming month for the country. If this is too early then it is advisable to book rooms in advance. In the mountains it is always desirable to be thoroughly prepared for rain when touring in an open car.

Coming south from Stirling we would suggest the route *via* Lanark and Moffat to Carlisle, which journey will be of small interest and great length compared with most of those allocated to each day hitherto arranged. This second visit to Carlisle thus occurs on the fourteenth night. From Carlisle we will now proceed to get across to the West in order to return South by another route and in order also to see much that is interesting in the Yorkshire district.

It will be a fairly long run to Harrogate but that is the stopping place we should recommend for the fifteenth night, for at that inland watering-place there is any amount of first-class accommodation, and it makes excellent headquarters for a rest, which will certainly be desired by this time in the tour. It will be much more pleasant to stay at Harrogate than at York, but needless to say you will proceed through York on your way to the South, although it is interesting to note that the Great North Road itself, which you ultimately reach at Doncaster does not pass through that historic city. Nowadays, of course, the highways are so numerous and so good in many places that there is no apparent difference between the road *via* York and the road that misses York, it is merely a matter of interest to know that even in the early days the main highway was not itself diverted by the early importance of the old capital city. There has always been considerable controversy as

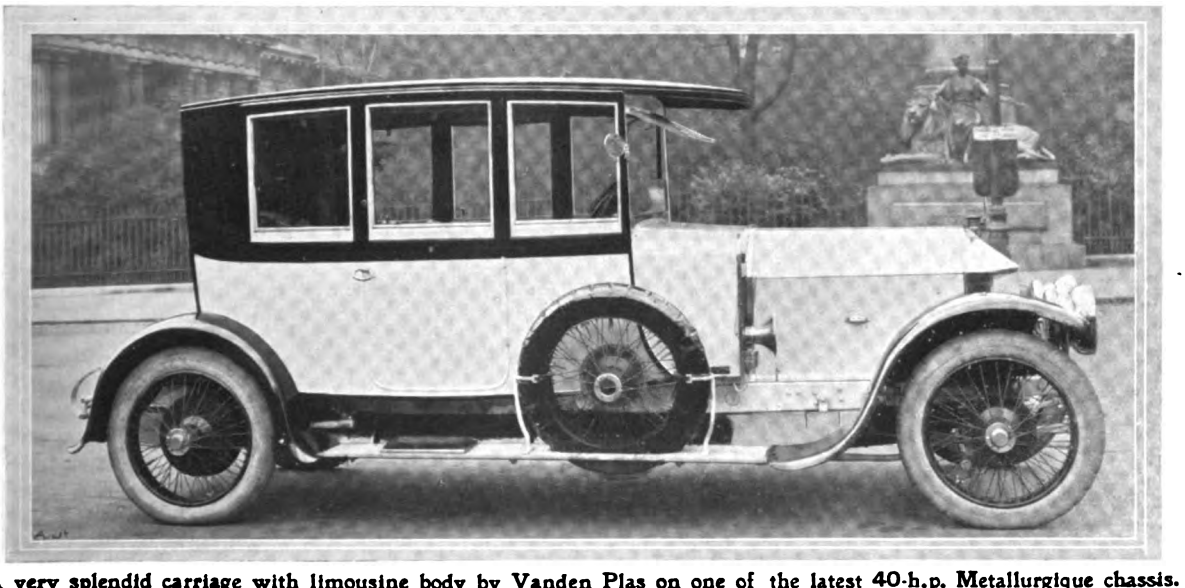
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to which is and which is not the Great North Road of tradition in the many places where that highway now divides only to rejoin at some more distant point. Not only is it a matter of controversy but of some confusion too, for more than one good motorist has lost his way while trying to follow this perhaps the most famous, but in some places the least well defined of all our highways. Having visited York without staying there we suggest that you proceed south through Selby, Doncaster, Worksop and Chesterfield to Matlock, another charming inland resort lying in the midst of the beautiful Derbyshire scenery, well south of the smoky factories of Sheffield. From Matlock, the sixteenth halt, you will pass down through Derby, itself uninteresting, through Ashby, Tamworth and Sutton to Birmingham and through that town without stopping, for all towns are more or less alike when they are industrial, to Droitwich, which is a remarkably small place built over the still more remarkable salt caves that supply its brine baths. Whilst there you will doubtless experience the doubtful delights of bathing in water in which you cannot sink but which will leave you with a saline deposit on your body that will call for exercises almost as vigorous as those associated with the revival of the apparently drowned in order to completely remove.

Worcestershire and Warwickshire are two of the most attractive counties in England but then one is inclined to say that of almost every county that we possess, for each in its way has delights that are entirely satisfying to the lover of beautiful scenery. The route chosen lies through Worcester and Broadway, Broadway itself being one of those delightful little villages lying at the foot of the hills where you will certainly wish to stay for several hours if not for a whole day. It has, too, one of those fascinating old inns, the Lygon Arms, wherein is usually to be found a quantity of old china and furniture, which can be purchased by the collector. Round about these places are others of equal importance and beauty, so having mentally concluded the return journey *via* Oxford to London, which according to schedule is reached on the nineteenth night, allowing for one night in Oxford on the eighteenth evening. We will now recapitulate the tour so as to put in the extra time that the motorists of leisure would certainly wish to devote to the better appreciation of the districts passed through.

Lyndhurst, in the New Forest, as has already been noted, is certainly worth an extra day, even more so at the best time of the year. North Wales would be a charming place for the week-end and it would be a good plan to arrange the start of the tour so as to reach Pen-y-gwryd on the Friday or Saturday. Chester is a city that will need a day to itself and the Lake District at least an extra day or two. Edinburgh is the same in this respect, but for the sake of keeping the time down to a minimum we will assume that the rest of Scotland is rushed to schedule and that the next real rest is taken at Harrogate and again at Matlock in order to see Derbyshire, and again at Droitwich, Worcester or Broadway in order to see Shakespeare's country, Warwick Castle and Kenilworth with many other places in the district that are dear to the heart of the American visitor but, sad to say, less visited by the Englishman than ought to be the case. But, all people are probably alike in their neglect of the attractions of their own land; certain it is, at any rate, that of the thousands who visit Warwick Castle and Stratford-on-Avon a ridiculously small percentage can claim British nationality. Oxford and its colleges will, of course, demand a day so that as a minimum we may add another nine days to the nineteen already scheduled, which brings the minimum total up to twenty-eight, that is to say a month's tour.

In the time available we can think of no better route for showing a visitor the variety of scenery and interest encompassed within our narrow shores. True, there is a great deal that he does not see in this trip but as we remarked in the first instance the motorist can only proceed in one direction at one time and the lie of the land is such that it seems to us to be better to move out of London south-west, than along any other road. South-east for example, leads down into Kent, the so-called garden of England, but with the time so short it seems to us inadvisable to start a tour that way, because of the time spent in working along the south coast towards the west. Charming country is passed through, of course,



A very splendid carriage with limousine body by Vanden Plas on one of the latest 40-h.p. Metallurgique chassis. It has a fine turn of speed in spite of its comparatively small 4-cyl. engine, having been tested on the level up to 70 m.p.h. It reminds us particularly of the beautiful car presented by Mr. Claude Grahame-White to his bride as a wedding gift a fortnight back.

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but a tour of this sort is not made in order to be surrounded for scenery for its own sake. Besides, Kent is a county that lends itself pretty well for an excursion from London which can be undertaken separately if time permits after return from the main circuit. Canterbury, is, of course, a place that every American would wish to visit, and it is easy enough to drive down there one day and return the next; a very charming week-end, for example, can be spent by making a small circuit tour from London through the south-eastern counties.

The same remark applies to the country north-east of London. East Anglia is rather like Devon and Cornwall geographically inasmuch as it forms a promontory into which it is necessary to make an excursion from the main line of route. Constable's country, which is very slightly north-east from London, is the most attractive part from the American visitor's point of view, but that also is best made the object of a week-end trip. Cambridge, which lies slightly east of north, is again a place within easy access of London, and there is, therefore, no particular reason to include it on the line of march when the surrounding country is so little worth while as compared with the interest and beauty attaching to the north-west. It is for that reason that the circuit planned to form part of the main tour re-approaches London from the west in addition to going north on that side also. For those who know the ins and outs of the country north of London, Hertfordshire for instance, and round and about Hatfield, there are many delights that scarce permit of a rival, but to the straightforward tourist we consider that that district and the north and north-eastern districts are less likely to hold the attention than those places passed through on the route shown. It is easy to see, from the map at any rate, that some sections of the country must be omitted, and it is better to omit those that are more readily visited after the main journey has been completed. With more time to spare than has been indicated as essential to the purpose of making the tour indicated, there is no reason why a party of motorists using this key-map for the general trend of their journey should not make a very thorough inspection of the pick of what we have to show. Such at any rate has been our object in preparing this route, and if any of our readers should think of following it, it will be a pleasure to us to help them increase their enjoyment in doing so by assisting them in the selection of books, maps, or the obtaining of any other information that lies within our power.

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FURTHER GRANTS BY ROAD BOARD.

DURING the months of April, May and June, 1912, the Road Board, with the approval of the Treasury, have made advances amounting to £123,315 from the Road Improvement Fund to County Councils and other Highway Authorities as follows, this making the seventh such list:—

	£
For the improvement of road crusts (including grants towards tar, macadam, &c., and surface tarring) ...	105,186
For road widenings and improvement of curves and corners	13,259
For road diversions	2,523
For construction and improvement of bridges	2,347
For construction of new roads	nil

The total grants up to June 30th, 1912 (after deducting grants cancelled), are as follows:—

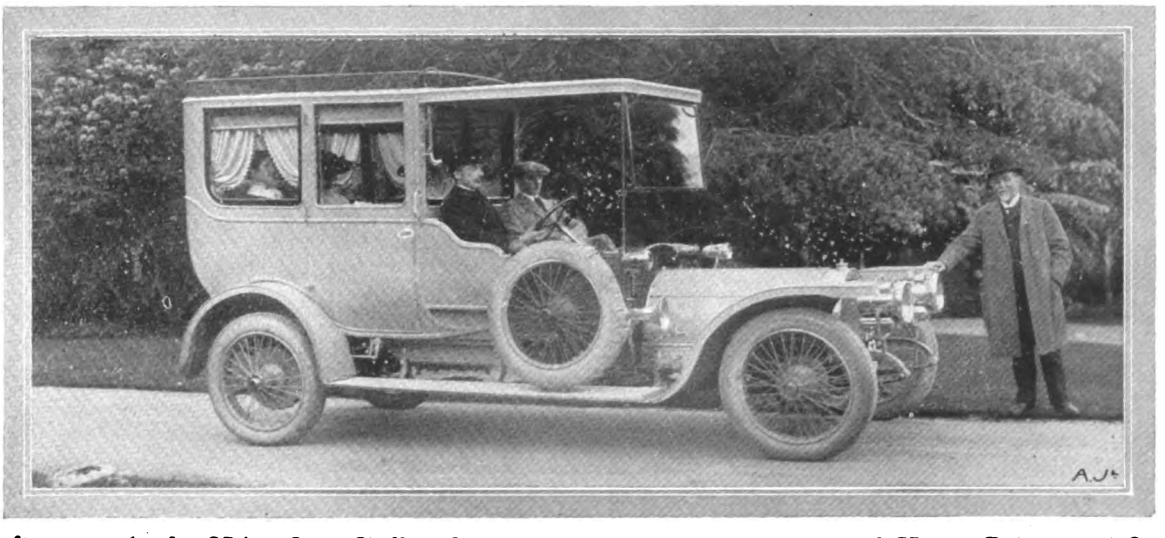
	£
For the improvement of road crusts	525,980
For road widenings and improvement of curves and corners	69,838
For road diversions	20,799
For construction and improvement of bridges	17,475
For construction of new roads	4,928

Advances by way of loan have also been made to the sum of £88,958.

In addition, further advances amounting in the aggregate to about £594,000 have been indicated to Highway Authorities towards works of improvement of which the details are still under consideration and discussion.

The Board have also intimated that they are prepared to contribute, subject to the approval of the Treasury, £875,000 towards the construction of a new western approach road to London.

Of the £123,315 included in the above list, £100,47c is allotted to Great Britain, £3,946 to Wales, £12,007 to Scotland, and £6,892 to Ireland.



A fine example of a 25-h.p. 6-cyl. Sheffield-Simplex car just supplied to the order of Messrs. Roberts and Sons, Londonderry, for a client in that district.

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SALTBURN SPEED TRIALS.

ALTHOUGH the weather was fine for the Annual Speed Trials of the Yorkshire A.C. at Saltburn last Saturday, a strong wind blew up the course, and probably it was on account of this that no record times were established. The entry list was a long one, including some 96 cars, but they were split up into so many different classes that in many cases there were not more than three in a class. Of the twenty-one classes which were run two were walk-overs, there being but a single entrant, while seven had but two competitors, and this largely detracted from the interest. The first eight classes were for members of the Yorkshire A.C., and in the first Mr. H. G. Catton walked-over on his 8-h.p. De Dion. The next class had only three competitors, and was won by Mr. J. Mortimer on a 11·9-h.p. Arrol-Johnston. There were also only three runners in the third event, in which the winning 11·9-h.p. Humber was driven by Mr. W. G. Tuck, and Mr. W. Paddon, on a 12·8-h.p. Benz, second. Better sport was seen in the fourth class, when there was a sharp tussle between Mr. Letts' 15-h.p. Crossley, driven by Mr. C. Bianchi, and Mr. H. G. Day on a 12-h.p. Clement-Talbot, victory going to the former, this same car defeating Mr. Herbert's 15·9-h.p. Singer in the next class. Mr. E. Genna on his 12–16-h.p. Sunbeam was first in the class for cars up to 3,450 cc. with a 20-h.p. Vauxhall driven by W. Bradwell. The two last of the closed events were won by Mr. Hubert Woods on his 20-h.p. Crossley. Then followed a similar series of open events which were a little better supported, although in the first Mr. H. Atlay on a 10–12-h.p. Mass had an easy win, and in the next, Tuck on the Humber had a walk-over.

There were half a dozen entrants in the event for cars up to 2,836 cc. capacity, and they were, therefore, run in two heats, in the first of which the 15-h.p. Crossley was the winner, while the 15·9-h.p. Singer was first in the second heat, and the final was won by the Crossley. In the next class, cars in which the cylinder capacity did not exceed 2,950 cc., five of the half-dozen entrants were eligible for the preceding class, and the final was won with the sixth, the 15-h.p. Straker-Squire, driven by Mr. R. S. Witchell, Mr. A. E. George on a 20-h.p. Ford being second. Mr. E. Lisle, jun., on a 14-h.p. Briton won the next class, and Mr. G. Hubert Woods on his 20-h.p. Crossley the following one. This car also finished second to Mr. O. Tholander's 27-h.p. Austrian-Daimler in the class for cars of unlimited capacity. Then followed two classes in which the limit was by chassis price, and in the one for chassis not exceeding £200, 20-h.p. Fords, driven by A. E. George and R. Winn respectively, were first and second, while in the £350 class, R. S. Witchell on his 15-h.p. Straker-Squire won the first prize, and C. Worral on Mr. E. Lisle, junior's 14-h.p. Briton was second. The next item on the programme was a handicap for Associates of the R.A.C., and as the twenty-five entrants were required to make a preliminary run down the course, after which the handicap had to be worked out before the event could be run off, there was a somewhat irksome delay. Eventually, however, the cars had all been timed, and after certain of them had been disqualified for exceeding by more than 5 per cent. their preliminary run, Mr. P. Norman Hirst on a 20–25-h.p. Overland was given as the winner and Mr. L. A. Rowden on a 15·9 Arrol-Johnston second, with Mr. Guy Barrett on an 18-h.p. De Dion third. An event for Grand Prix cars resulted in a walk-over for Mr. Herbert's Singer, while in the racing car event the only entrants were Mr. H. A. Arkwright on a 59·6-h.p. Benz driven by Mr. L. G.



R.A.C. NORTH-EASTERN MEETING AT SALTBURN.—General view of the start on the sands for the races, showing the gripping platforms for getting off from.

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RACING AT SALTBURN SANDS.—A tussle for Event B between Mr. R. S. Witchell on his 15-h.p. Straker-Squire (leading) and Mr. Worral on his 14-h.p. Briton.

Hornsted and Mr. O. Tholander on his 27-h.p. Austrian-Daimler. The Benz was an easy winner, the best of three runs giving a speed of 90·93 m.p.h., while the Austrian-Daimler's best run was at 77·67 m.p.h. The event for motor cycles only drew two entries and resulted in a win for Mr. G. W. Phillips on a 5-h.p. Blumfield.

R.A.C. ASSOCIATES' MEETING IN THE NORTH.

ALTHOUGH a very full programme had been arranged by the North Eastern Automobile Association for the Eighth Provincial Meeting of the R.A.C. and Associated Clubs, held in their territory on Saturday last, the arrangements made were so excellent and complete that everything passed off without a hitch. No doubt the unsettled nature of the weather prevented a good many motorists from the South from venturing on the long drive to the North of England, but the meeting was splendidly supported by members of the provincial clubs in Yorkshire, &c., who readily embraced this opportunity of meeting their fellow associates. In the morning Saltburn Beach was the centre to which the Associates wended their way, many of them making a stop at Guisborough to look at the ruins of the old Priory. After the speed trials had been concluded the journey north was resumed.

The first stop was at Winyard Park, a seat of the Marquis of Londonderry, the beautiful grounds of which proved very attractive to the visitors, the privilege of viewing them being much appreciated. Continuing the journey a halt was called at Durham in order that the Cathedral, and also the Castle, might be seen, and then as time was getting short a few paid a hurried visit to the ruins of Finchale Priory, while others had an enjoyable drive through the very fine grounds of Ravensworth Castle. On arrival at Newcastle a dinner was held at Tilley's Assembly Rooms and, although the Lord Mayor was unable to carry out his intention of presiding, owing to an unfortunate accident to one of his legs, his place was ably taken by the Deputy Lord Mayor, Mr. Herbert Shaw.

The speeches were commendably short and to the point, and in proposing the R.A.C. and Associated Clubs, Mr. Claud B. Palmer referred to a case which had been completed that day in which a member of the N.E.A.A. had been successfull in obtaining damages against the Newcastle Corporation for injuries to himself and wife sustained through his car colliding with an unlighted central tramway standard.

In responding, Mr. A. Armitage, Chairman of the General Committee of the Associated Clubs, announced their latest scheme for a special badge which would enable Associates to get to their destination in the event of their cars breaking down. This is referred to elsewhere in this issue.

"The City and County of Newcastle and Local Authorities" was proposed by Mr. J. W. Orde, and responded to by the Chairman, who said he thought the tramway standards should be clearly marked, and he believed the Corporation would be willing to take safeguarding steps in future.

In conclusion, a word of praise must be recorded for the splendid work done by the N.E.A.A. Committee and Mr. J. E. Hodgkin, Secretary, in organising and carrying through the arrangements.

Insurance Act Causes a Strike.

AMID the general jubilation at the Sunbeam works at Wolverhampton, consequent on the victory in the Coupe de *l'Auto* race, there was temporary discord. Some misunderstanding arose over the working of the Insurance Act, and about 1,000 men went on strike, but on matters being explained they returned to work.

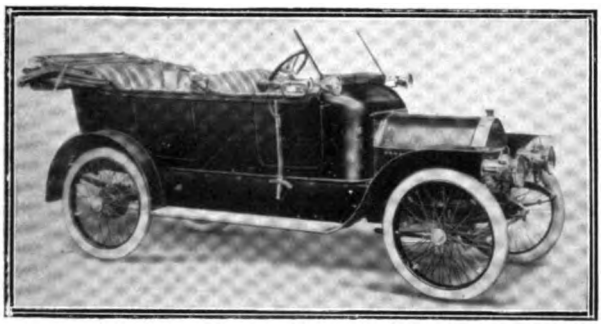
Foreign Miscellany.

IN our issue of June 29th we referred to an article by M. S. Gerster on the "Movement of Springs" as having appeared in *La Vie Automobile*, whereas it really appeared in that excellent French technical paper *Omnia*, the official organ of the "Chambre Syndicale des Constructeurs d'Automobile."

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THE "ELEVEN" HUMBER.

MUCH has been written and much more has been said about the cheapness of imported cars on the English market, but for a really smart modern turnout the Englishman in search of a small car has no need to go further than the 11-h.p. Humber, which is sold ready for the road at the very moderate sum of £285. For many years, indeed, since they started to build automobiles, the Humber Co. have had an enviable reputation for making a nice-looking job of their cars, which have always been characterised by neatness of finish and a particularly

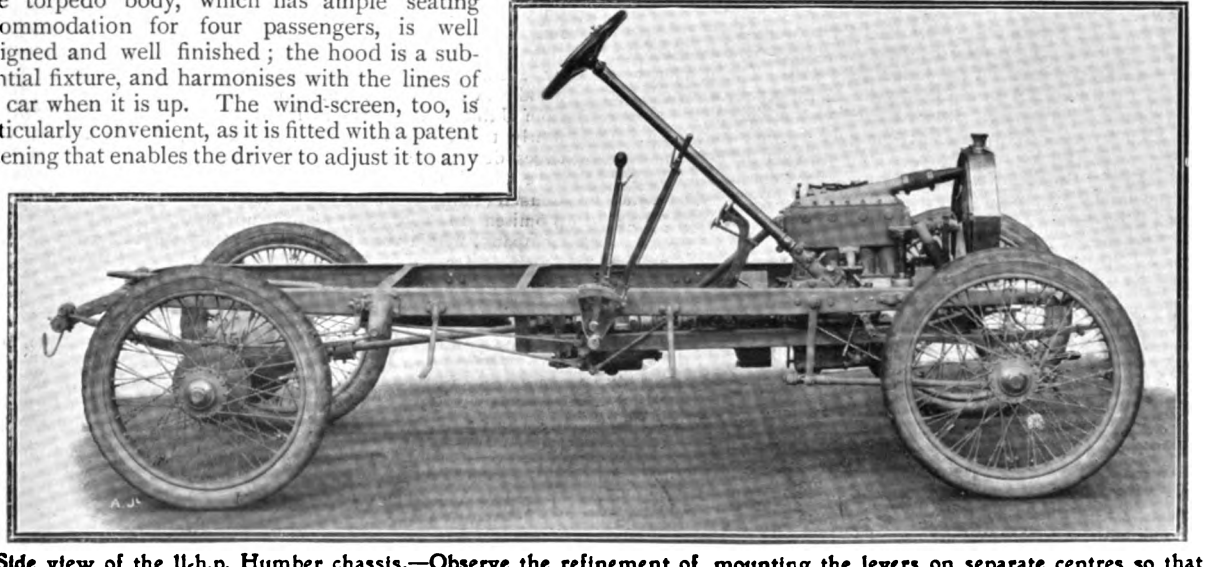


THE 11-H.P. HUMBER.—One of the latest and also one of the smartest of the British small cars.

smart appearance. They have had the knack, as designers of coachwork—and the coachwork of the Humber cars has always been produced in the Humber factory as well as the chassis—in hitting off the best features of a big car in their small-scale reproductions. There has never been a small Humber car on the road yet that in any sense lacked dignity or was other than a thoroughly up-to-date machine. With this year's 11-h.p. model, the same remarks apply throughout, as a glance at the accompanying illustrations serves to show. Although a small car, it is excellently proportioned, and the casual observer seeing it standing by the kerb would scarcely be able to say after a first glance whether he had been looking at a large or at a small machine. Of one thing, at least, however, one could be certain, which is that he would comment favourably on its appearance. The torpedo body, which has ample seating accommodation for four passengers, is well designed and well finished; the hood is a substantial fixture, and harmonises with the lines of the car when it is up. The wind-screen, too, is particularly convenient, as it is fitted with a patent fastening that enables the driver to adjust it to any angle without leaving his seat. Detachable wire wheels are fitted and a spare wheel can be very conveniently carried on the off-side step, in a recess provided for the purpose. The electric side lamps and tail lamp, too, are all good quality and well placed on the car, so that they add to the general effect of the *toute ensemble* and emphasise the essential fact that there is no attempt whatever to skimp good work for the sake of selling at a low price.

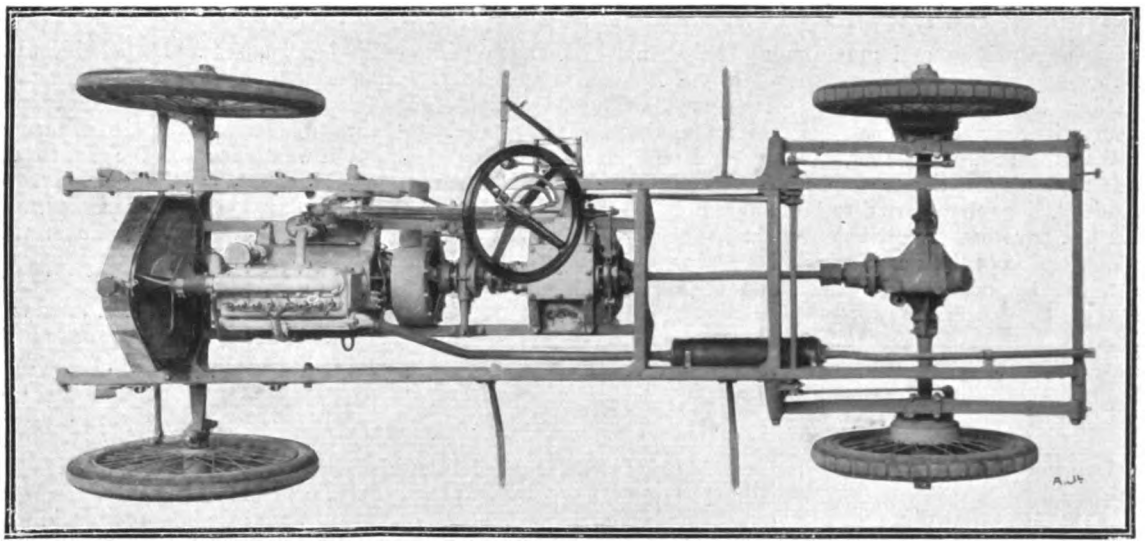
As to the running of the machine itself, it is difficult to find other words than those of praise, and as on the occasion of our own trial of it we overloaded the back seat to the extent of carrying three passengers therein, we are all the more inclined to dwell upon the favourable features, which were especially prominent. In the first place, it has an admirable turn of speed and what is still more important is that the engine runs at its best when the car speed is about that at which most motorists would wish to travel on a machine of this kind. Being suitably geared, and having an engine with a great deal of life in it, albeit only 68 by 120 mm. bore and stroke, the car is an excellent top-speed hill climber even with five up; but it is, of course, necessary to remember that the engine revolutions are the principal source of power in an engine with such a very small bore. Having only three speeds in the gear-box, the drop down to second speed is fairly severe, but the speed itself is a very useful one and will take the car anywhere.

Perhaps some drivers of the new 11-h.p. Humber may have found some little difficulty about getting down to the second speed with quite that complete absence of noise that gives a *cachet* to skilful driving. The difficulty is mainly due to the rather big difference in ratio between the two gears, and the only satisfactory method is to double clutch with great determination. By this we mean that the direct drive should be leisurely disengaged while the car is still travelling at a fair speed. With the gear lever in neutral the clutch is then engaged and the accelerator pedal fully depressed for a moment, after which the clutch is disengaged and the gear lever leisurely drawn into the second speed notch. It requires very little practice to do this rapidly and silently, but it



Side view of the 11-h.p. Humber chassis.—Observe the refinement of mounting the levers on separate centres so that the brake may not jam the change-speed.

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Plan view of the 11-h.p. Humber chassis.—Note the use of the underframe for the support of the engine and gear-box.

must be performed with determination, and to our mind, the only sound way of acquiring the art is to carry out the manœuvre before it is absolutely necessary so that the momentum of the car may give confidence in the leisurely execution of each operation, which otherwise is apt to be lacking in certainty if there is too much hurry to engage the lower gear because the machine appears to be about to come to a standstill.

With this little exception, there is absolutely nothing about the driving of the 11-h.p. Humber that should present the least difficulty even to a novice. The clutch and brake pedals are exceptionally light and the accelerator pedal is well placed. An ignition lever in addition to a throttle lever is provided above the steering wheel, and the former is, in our opinion, always a desirable attribute on any car that has an engine worthy of the name. Of the chassis design, the accompanying photographs speak for themselves, but we should like to draw attention to the very clean lines of the chassis in plan view. The engineering mind will observe the parallel side members of the perfectly straight frame and the stiff underframe which supports the engine and the gear-box, and could, if necessary, be used to still further reinforce the main frame by an oblique extension to the rear. The engine is a very neat four-cylinder monobloc and the clutch has coned friction surfaces running in oil. The gear-box, too, is a very neat and compact design and the sliding members are, of course, operated on the gate principle.

In a word, the little Humber chassis is a very typical example of modern British car construction and a very good one, too.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Special Road Warnings.—Will members please drive with care in the following places:—On the Canterbury–London Road, between the villages of Ospringe and Preston,—Kirkby Stephen (the main street is now up for sewerage work). The residents of Ruabon are complaining of numerous motor cyclists who pass through during church service hours with cut-outs open, and the Parish Council are strongly in favour of applying for a speed limit order.

Triptyques for Motor Boats.—Arrangements have been completed whereby the Association is able to issue triptyques for motor boats and racing yachts proceeding to French waters. Possession of these triptyques will obviate the necessity for depositing the usual duties upon arrival.

Speed Limits.—The Association will be represented at the forthcoming Local Government Board Enquiries into Speed Limit applications for Sutton Coldfield (July 23rd) and Wanstead (July 19th). Will members in a position to render assistance by furnishing information, etc., regarding these districts kindly communicate with the Secretary.

Irish Notes.—*Direction Signs.*—The Association proposes to continue the work of signposting the Irish roads on a larger scale, and offers are now being made to the various County Councils, the terms of which, if accepted, pledge the Association to supply all the direction signs that may be needed for main roads in Ireland. Already the following counties have agreed to co-operate with the Association:—Antrim, Carlow, Fermanagh, Kildare, Kilkenny, Londonderry, Sligo and Wexford. The Association is in communication with other County Councils with a view to the roads being treated in a similar systematic manner. It is intended to prosecute the signposting campaign with the greatest vigour, until every important turning and branch on the main roads in Ireland are indicated.

Tram Lines on Main Roads.—Acting upon reports sent in by several members, the Association has drawn the attention of the Middlesex District Council to the very bad condition of the road from Uxbridge to London. In some places the tram lines protrude nearly two inches from the road surface, and have sharp cutting edges destructive to tyres; and other portions of this main road have holes four and five inches deep. The Surveyor to the Local Council (acting upon the suggestions of the Association) has kindly promised to take the matter up at once with the Tramway Company, with a view to having the track put into good condition.

Abbatoirs on Main Roads.—With reference to the proposal to erect a municipal abbatoir at Coventry near the main Holyhead road, it will be remembered that the Association, in conjunction with local motorists, vigorously opposed this scheme, and pointed out to the local authorities the dangers that would ensue to road users if the site proposed for the abbatoir was adopted, owing to the continuous presence of cattle on the main road, both during the daytime and after dark. It is therefore satisfactory to record that at a recent Council Meeting, the abbatoir scheme was rejected.

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For Accessories see Illustrated Directory weekly.

For all Cars and Addresses see Directory weekly.

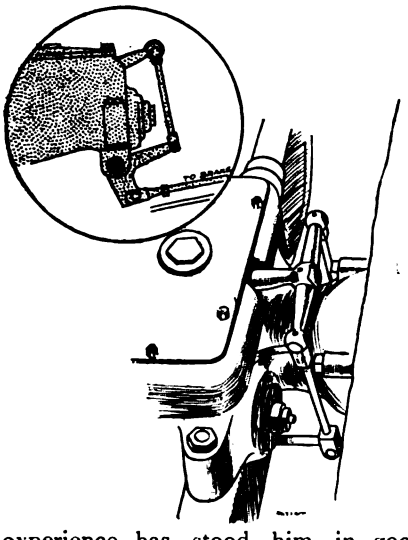
For the Best Hotels, see "Auto." Guide every week.

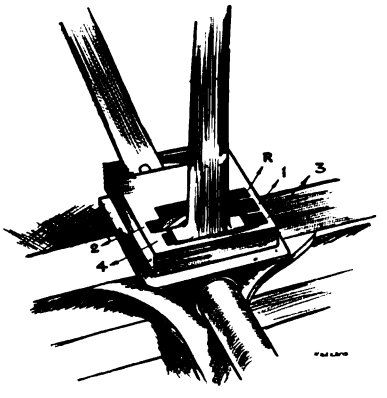
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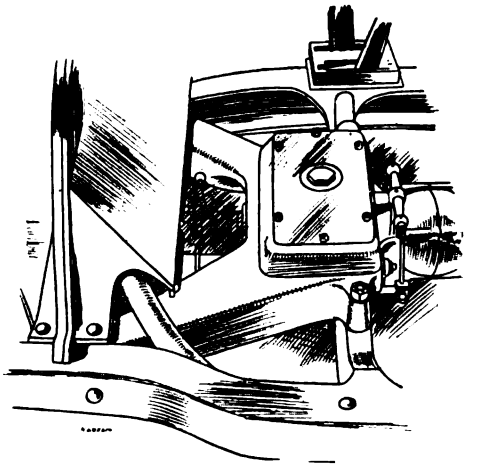
POINTS FOR THE BUYER.

FELICE NAZZARO, perhaps the most famous of racing drivers, has followed the example of his former colleague Lancia and has "started on his own" by bringing out a chassis of his own design, to wit the 20-30-h.p. Nazzaro. In doing so he has proved beyond the shadow of a doubt that besides being a most skilful racing driver, he bids fair, as a designer and a manufacturer of motor cars, to equal if not to surpass the best that has ever been turned out by the most famous Italian workshops.

The Nazzaro chassis is indeed as fine an example of automobile engineering as one could wish to come across. It is quite evident that in designing it S. Nazzaro's







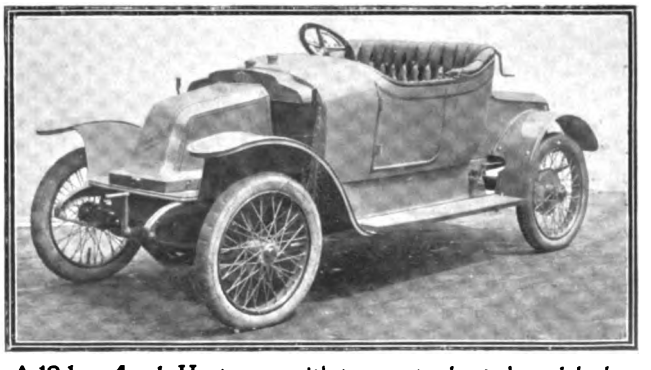
experience has stood him in good stead. He has succeeded not only in satisfying the critical eye of the expert by making the chassis mechanically wellnigh perfect, but, a point which in these days of keen commercial rivalry is not less of importance, he has produced a chassis which is also pleasing to the eye of the private motorist. At some future date we propose giving our readers a detailed description of this latest Italian product, but to-day we wish to point out a few of its points which may perhaps be considered of minor importance, but the great care which is shown in their design can be regarded as a criterion for the pains that have been taken over the whole job.

The first of the three sketches produced herewith shows the very solid and ingenious compensating gear of the hand-brake, the short lever protruding from the rear end of the gear-box ends in a ball joint which carries a balance-rod having similar joints on either end. From their extremities two short rods, universally-jointed at both ends, project downwards and work the actual brake-rods by means of bell-crank levers attached to the cross-girder of the frame, which serves as a support for the gear-box. It should be noted that both brakes act directly on the rear wheels, and the foot-brake is provided with a similar balance gear situated in front of the gear-box as can be seen in the sketch on the right.

As a driver of more than average experience, S. Nazzaro has surely felt the inconvenience which is caused by the change-speed and hand-brake levers being situated either both outside the bodywork or one on either side of the panel. The fault of this is generally attributed to the coachbuilder, but in many otherwise quite excellent chassis it is utterly impossible for the carriage-builder to make a satisfactory job. Even if he succeeds in placing both levers inside, it is often only accomplished at the expense of the convenience and the comfort of the man at the wheel whose legs are obstructed by the protruding quadrant and he often finds it impossible to get a good grip of the brake-lever owing to the very small clearance between the latter and the bodywork. As shown in the central sketch, this difficulty has been overcome by placing the quadrant on the inside of the frame making it quite flat.

In our third sketch we show the remarkably rigid support of the gear box in the chassis, the box itself is very compact, but it is cast together with two strongly webbed girders the forward ends of which are bolted to the frame in such a way that they overlap the two rear-most engine lugs, while the rear of the gear-box is bolted to a cross member of the chassis in the usual way. The effect of this suspension is that it embodies all the advantages of the unit construction, chiefly preserving the alignment of all the shafts, while at the same time the clutch and all the parts between engine and gear-box are perfectly accessible and can be adjusted or removed without interfering in any way with any other part.

Messrs. Newton and Bennet of Manchester are the concessionaires for Nazzaro cars in this country, and they have appointed Messrs. Wardman and Fitch, of 166, Great Portland Street, as their London agents, where the chassis can be inspected and full particulars obtained.



A 10-h.p. 4-cyl. Hurtu car with two-seater boat-shaped body, by the Ariel and General Repairs, Ltd., of Camberwell New Road. These cars can now be fitted with either artillery wheels or wire wheels at the same price of £250.

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Notes from New York



A PATENT has just been issued to Mr. George B. Selden, which was originally applied for on May 8th, 1879. Under the ruling of the Patent Office, the original application was divided and the present patent No. 1028501 was filed separately on September 7th, 1895. It is claimed to cover all practical forms of combined front driving and steering wheels of, petrol, electric, or steam vehicles. As, however, this system of transmission is practically unknown in America, except for commercial vehicles, the issue of the patent has not created much stir.

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During the autumn the Hartford, G. and J., Morgan and Wright, and Continental Tyres representing the prominent firms which were amalgamated in the United States Tyre Company will disappear from the American market, the firm then only marketing the United States tyres which were introduced last winter. Although the site of the new model factory which is to be put up at a cost of between $3,000,000 and $5,000,000 has not been definitely announced, it is rumoured that it will be located at Speedway, the new automobile city near Indianapolis.

• • •

The peculiar conditions under which electrical vehicles run have led to the United States Tyre Co. introducing a special tyre on which a guarantee of 5,000 miles has been placed. It is claimed for the new tyre that its use will effect a saving from 20 to 25 per cent. in the cost of current consumed.

• • •

At last the Long Island Motor Parkway has been finished, and was finally opened on Saturday, June 15th. The track now goes from Hillside Avenue to Lake Ronkonkoma, a distance of forty miles, and the toll is $1 a day or $50 for the entire season. There is no speed limit.

• • •

Motorists who imagine that the special court for motor offences at Chicago would mean that they would be treated lightly for their offences are likely to be disappointed. On the opening day the fines inflicted for exceeding the speed limit averaged $66 for car drivers and $30 for motor cyclists. Judge Stewart warned the culprits that if they appeared in the Court again the fine would be doubled.

• • •

There is in Bar Harbour, Me., a carriage proprietor who is not at all fond of the motor car. A day or so ago he had a motorist arrested for going through the town of Eden, which is closed to motor-cars, resulting in a $20 fine being inflicted, from which an appeal is being made to the Supreme Court. The motorists are smiling now, however, as the motorphobe has been arrested, and charged with violating one of the "blue" laws of the State, the specific offence being that he let out horses and carriages for hire on Sundays.

• • •

New York now has an Electric Automobile Club, and by way of educating the public as to the merits of this type of vehicle a club run was recently held from Columbus Circle in New York to Bronxville and back. The outward and homeward journeys were made by different routes and the round trip totalled 45 miles. Some fourteen members took part and completed the run without any incident.

• • •

A Motor Mart is proposed by the Syracuse N.Y. Automobile Dealers Association. It will take the form of a square building two stories high with a large court in the centre having a dome-shaped roof of glass capable of being used for the Annual Automobile Show. In the main building would be arranged the offices, sales rooms, and garages of the dealers, while the open court could be divided into storage spaces by temporary partitions.

• • •

In response to a petition by the livery stable keepers of Nantucket, the local authorities passed a special ordinance prohibiting the use of motor cars on the Island during the touring season. Now, however, the authorities have purchased a motor fire engine, and in view of this inconsistency, the motorists are urging that the anti-motor by-laws should be repealed.

• • •

Although a New York tailor has stated that on an average the girth of a man's chest increases about two inches a year after he takes to riding regularly in a motor car, he did not give any opinion as to the cause of this. Whether the development comes from the inhaling of more and purer air or whether pride is responsible for the swelling is left to conjecture.

• • •

At the expense of Mr. J. N. Willys, President of the Willys-Overland Automobile Co., the band of fifty men and boys from the works at Toledo have been given a month's tour during which they gave performances in 24 of the principal cities of the Western part of the United States. In each city at least one concert was given free in a public park.

• • •

The Illinois Board of Agriculture has offered a silk American flag for the city in the State which sends the largest number of motor cars to the State Fair next October. Gold, silver and bronze medals will also be given as second, third and fourth prizes.

• • •

On the ground that his car was used for government purpose and so was exempt from State tax, a mail carrier in Iroquois, Ill., declined to take out a licence for his motor mail cart. He was arrested and, after evidence by the State Attorney that the car was used for pleasure purposes as well as the mail, the owner pleaded guilty and was fined $25 and costs.

• • •

Pittsburgh motorists are up in arms against two new by-laws which the City Council propose to introduce. One seeks to prevent motor cars from being allowed to stand at the kerb in the shopping centre of the city for more than a quarter of an-hour, while the other fixes the punishment for the using of a cut-out as a warning signal at $10, or thirty days in jail.

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By VICTOR HART.

Tyres in the Tourist Trophy Races.

ALTHOUGH the fastest machines in the Junior and Senior races are the winners, it is just as well to remember the real object of these contests, which must not be confused with speed contests solely, such as are decided upon Brooklands track. This object is stated in the opening paragraph of the official regulations this year and may well be repeated here, because very few folks, other than those who visit the Isle of Man for the contests, seem to be aware of the paragraph, which reads as follows: "The International Tourist Trophy race is intended to assist the development of a *touring* motor cycle for the solo rider and of the power required by the ordinary user, regardless of the number of cylinders. It is not intended for racing motor cycles and is not necessarily a race between existing standard types."

The six races decided since 1907 have revealed defects in design, constructional detail, or of some essential part of the equipment without which the machine is incomplete but which is not produced by the machine manufacturer. Last year's events around the new course tolled the death knell of single gears and concurrently showed the necessity for multi-speed gears. The lesson of the 1911 race was so well learned, that of the 60 starters in the two races this year, only one machine was fitted with a single gear, and the driver traversed but a couple of laps before retiring.

Tyres in the 1912 races were responsible for an enormous amount of trouble, and in one case cost a driver second position in the Senior race, after he had secured that place inside the first 25 miles. Frank Philipp on the 3½-h.p. twin-cylinder 2-stroke Scott, ran through without a single stoppage, other than for fuel and oil replenishment, and was practically certain of gaining second prize until the rear cover burst off the rim when Philipp was travelling over 50 m.p.h., resulting in 30 minutes' delay to repair and a drop down to 11th position at the finish. In the Junior race H. C. Newman 2¾-h.p. Ivy-Precision achieved 3rd place in the 1st and 2nd laps, being only 3 minutes 58 seconds behind the leader at 75 miles; 10 miles further, his back cover burst off the rim and it took so long to repair that the plucky young driver disgustedly retired. Last year's winner of the Junior race P. J. Evans, was another unfortunate man who blamed tyres for most all of the delay that sent him down to the last place in the 1912 race. Other men, less prominent in the early stages of this year's races, might possibly have gained honours by completing the full distance if tyres had stood up to the work. Amongst these can be mentioned J. T. Bashall 2¾-h.p. Humber, Quentin Smith 3½-h.p. Triumph—during the practising, Smith was reckoned the fastest of the single-cylinder machines in the Senior race—H. Petty 3½-h.p. Singer, Hugh Mason 3½-h.p. Matchless who experienced a burst front tyre, V. Pratt 3½-h-p. O.K.-Precision, &c.

Punctured tyres were few and far between and from what was gleaned when the men told their attendants or helpers of the causes delaying them in the various laps, only two punctures could be traced, viz., one to R. G. Mundy's Douglas coming down from the Bungalow to Douglas and one to P. J. Evans' Humber at Kirkmichael. Comparing the tyre defects, it is obvious that the covers were stout enough to withstand the strains of high speed work in regard to the treads, but would not hold in the rims against the sideways stresses and consequently blew off, generally whilst the machines were turning corners or were being driven around acute bends. Because the leaders in each race went through without tyre troubles, the manufacturers properly claim credit for their goods in helping drivers and machines to achieve success, but I have not yet noticed any advertising references to tyres which failed. Unless witnessing the contests and listening to the none too complimentary remarks of the drivers, motorists would naturally conceive the idea that tyres were faultless and have reached the stage when further improvement is beyond the skill of tyre makers. The latter argue that the bursts were due to incorrect fitting of tyres to rims by the amateurs who were driving, but this is absurd when one knows that similar happenings caused retirement of skilful trade drivers who, presumably, thoroughly understand tyre manipulation.

Tyre Standardisation.

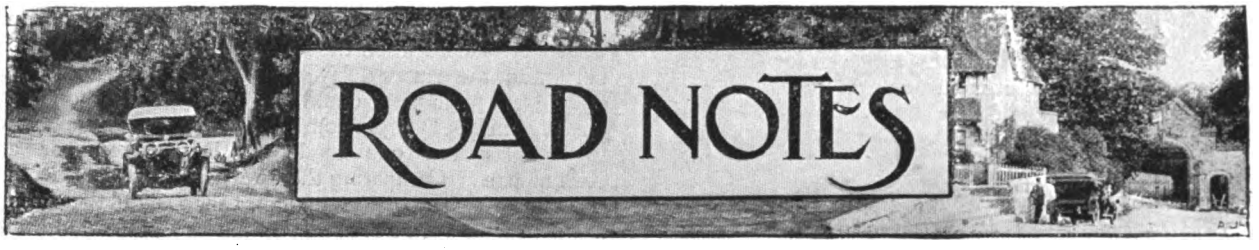
The question arises whether tyre covers or rims are responsible for bursts and this brings us back to the old and still insistent demand of motor cyclists for tyre and rim standardisation. Last autumn the Manufacturers' Union announced the dimensions for "standard" rims and it was generally understood that these official sizes would be universally adopted by rim makers for 1912 and therefore be employed for wheel building in all factories. Are all rims fitted to all 1912 machines of the standard sizes officially settled in 1911? Enquiry at one factory on this matter produced a non-committal reply, and this is doubtless the position of affairs elsewhere.

They do things differently and better in the United States, for the principal rim and tyre manufacturers held joint conferences, arrived at a "standard" and agreed that every rim made to the fixed dimensions should be stamped with a special mark, sufficiently thrown into relief by the stamping tool to permit the mark appearing distinctly through the coats of stoved enamel after the wheels are built up. The same mark is moulded upon the wall of all American standard size tyre covers, and to-day, an American motor-cyclist can purchase a 1912 cover of any make with the certainty that it will fit the wheels of any 1912 machines. We are a very long way from that sensible scheme on this side of the Atlantic Ocean, and if a rider wants a new cover, he

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is compelled to purchase a similar make to what he has been using.

Machine makers, recognising the value of open competitions, are not afraid of public comparison and one would naturally expect the tyre makers to be equally anxious to prove superiority. The T.T. races have demonstrated one weakness, yet tyre makers, collectively, refuse to learn the lessons of those contests. Nor are they desirous of obtaining awards in reliability trials where speed is officially vetoed. In the forthcoming 1,000 miles Reliability Trials this coming August at Taunton, tyre entries—distinct from machines—had been invited but this section of the trade has announced, through the Manufacturers' Union, that tyre entries will not be sent by members. I am not aware whether all tyre companies hold the same opinion, so it is possible that some enterprising tyre concern may yet reap much honour—and consequent business—by submitting its wares to the fairly easy ordeal of the six days' trial.



COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Gas mains being laid on the Wrexham road, near Gresford, 9½ miles south of Chester, half width; road is narrow; work will take between four and five weeks.

Manchester-Chester Road.—Holford Bridge under re-construction in the parish of Tabley Inferior, 9 miles from Altrincham; lighted at night. Also under repair at the Bull Ring, Northwich, being closed to traffic; alternative route *via* Timber Lane; lights at night.

Members are requested to slow through Altrincham.

LANCASHIRE.—*Carnforth-Lancaster Road.*—Under repair and in dangerous condition, especially at night.

Members slow through Galgate, 4 miles south of Lancaster.

YORKSHIRE.—*Leeds District.*—Timing is still in hand at Moortown, Leeds, between Askern and Doncaster, through the 10-mile limit at Burnley and at Ilkley, and on the Holton-York road, ¼-mile west of Malton from the 1st milestone.

Malton-Scarborough Road.—Members are requested to give warning when approaching the cross-roads in this road.

York-Scarborough Road.—Under repair between the 5th and 6th milestones from York, full width at a time.

York-Selby Road.—Repairs between Selby and Riccall, full width.

Middlesbrough-Kirk Leatham Road.—Repairs in three places, full width, between 3rd and 7th milestones from Middlesbrough.

Thirsk-Yarm Road.—Under repair, full width, between 9th and 11th milestones north of Thirsk.

NEWCASTLE-ON-TYNE.—*Town Moor, Newcastle.*—Measured distance between North Road and Blue House Police Stations.

EAST.

LOWESTOFT.—Main road completely blocked; alternative route, turn right at Kensington Road, then left along parade and thence to main road at Harbour Bridge.

SOUTH.

BATH ROAD.—Timing in hand at Harlington. Members are requested to slow through Maidenhead. Control working between Twyford and Wargrave.

KENT.—Timing at Bexley Heath, Shooters Hill and Blackheath.

Members are requested to drive slowly through King Street, Maidstone.

Kingsdown-Farningham Road.—Granite being laid between Kingsdown and Gorse Hill; lighted at night.

LONDON DISTRICT.—Control on Victoria Embankment, between Westminster and Tate's Art Gallery. Timing likely to be in force in and near Golders Green, Mitcham, Morden, Sutton, Banstead, through Croydon to Purley, between Wimbledon and Ewell, between Hounslow and Staines, Kingston Hill, Putney Heath, Harlesden, Deptford, Camberwell, Maida Vale, Highgate, Holloway, and High Street, Lewisham; also between Sudbury and Harrow Hill.

OXFORD ROAD.—Control working in Denham Avenue, off Normans Hill. Under repair in High Wycombe on main road.

SOUTHAMPTON DISTRICT.—Tarring in hand at Millbrook Road from Four Post Hill; alternative route, Paynes Road, Howard Road and Archer Road to Avenue for London cars, and *via* Waterloo Road for Southampton cars.

SURREY.—Control at South Godstone Railway Station, between Kingston and Esher, on Kingston-Leatherhead road, and between Ewell and Epsom.

Chertsey.—Control likely to be working in Chertsey Lane, Thorpe.

Eastbourne Road.—Timing likely to be in force in and near Kenley and Whyteleafe; also between Dorking and Westcott, at Milton Heath. Control likely to be working in the Bridge Road, Godalming, 10-mile limit. Lingfield races take place on the 12th and 13th inst.

SUSSEX.—Controls likely to be working along Grand Parade, Eastbourne. Road under repair between Ranscombe Hill, Lewes-Polegate road. Controls working between Lewes and Brighton.

WEST.

DORSETSHIRE.—*Poole-Wareham Road.*—Foundations being laid at Sandford, 3 miles east of Wareham, whole width, also at Chidcock Hill on the Bridport-Lyme Regis road 3½ miles west of Bridport, also at Long Burton on Dorchester-Sherborne road 14 miles north of Dorchester, and on the Poole-Blandford road 5 miles north of Poole.

MIDLANDS.

STAFFORDSHIRE.—*Stafford-Lichfield Road.*—Under repair through main road, Stafford, for about 200 yards, full width; lighted at night.

COVENTRY ROAD.—Special caution is necessary at Weedon on entering the town from the north-west or Daventry side, as timing is in progress. Roller at work 2 miles north of Dunchurch, half width. Re-metalling at Hockliffe and in High Street, Dunstable. Members are requested to slow through Redbourne, Fenny Stratford and Stony Stratford.

DERBYSHIRE.—*Derby-Loughborough Road.*—Roller at work re-metalling, full width, 1½ miles north of Kegworth; care needed at night, as there is unrolled metal left.

Racing at Netley.

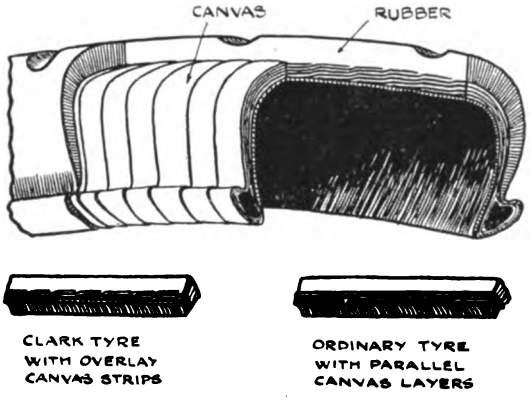
THREE motor boat races were decided by the R.M.Y.C. at Netley last Saturday. A handicap sweepstakes for hydroplanes brought out four starters including Viscount Ingestre's Talbot-engined "Winifred" and Mr. N. C. Neill's Fauber-Saunders boat "Minimum." The latter was the only boat placed, as the boats were handicapped on their declared speeds and "Pixie II" and "Winifred," the only other boats to finish, were disqualified for exceeding their declared speeds of 24 and 26 knots respectively. The second race was for displacement boats of any speed and resulted in a win for Mr. F. P. Armstrong's "Solace" beating Mr. M. Batting's "Bunny" by 15 seconds. There were three starters in the last race which was a sweepstake for the restricted class and resulted in an easy win for "Minimum" with "Pixie II" a fairly good second.

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THE CLARK TYRE.

A SINGULARLY interesting tyre is about to be placed on the market, under the name of Clark, and a very well-known motorist, Mr. Rudolph Selz of 14, Castello Avenue, Putney, is playing a prominent part in pioneering the invention. Essentially the Clark tyre differs from the ordinary tyre in that the canvas fabric forming the foundation of the outer cover is built up of overlaid strips instead of being moulded out of sheets that are the full length and width of the tyre casing. In the Clark tyre, these strips are quite narrow and they are independent of one another, that is to say, in the event of damage to the outer casing, one or more of the strips can be torn away and a fresh set inserted in their place. Thus, at the very outset it will be observed that the Clark tyre claims an advantage that it will be difficult to gainsay, namely, that in the making of repairs, it renders possible and facilitates a thoroughly sound job. Moreover, there is yet another point to be observed in connection with the repair of the Clark tyre, which is that the overlap of the strips is such that the rubber of the tread takes root, as it were, right down through the fabric itself to the level of the inner lining; it is not intercepted by any one continuous stretch of fabric, and the consequence is that when it becomes a question of vulcanising on a new tread there is always a fair foundation of old rubber on which the new rubber can get a grip. It may seem strange, thus to deal with a new tyre by touching upon the subject of its repair, but it seems to us that this question of repair is after all one of the most important aspects of tyre economy, for the fact remains that an outer cover is an expensive article that is liable to be ruined by an accident. Many an otherwise good cover has had to be put aside from use before it was thoroughly worn out, and any system of manufacture that enhances the repairing qualities of a tyre is unquestionably to be commended if it proves itself to be successful. Like a pair of old boots, there is a good deal to be said for an old cover provided the tread can be kept in good condition.

Originally, the Clark tyre may be said to have been designed with the primary object of equalising the stresses in the fabrics of which outer covers are made. Every motorist who has ever studied the tyre question, has had explained to him times out of number how the warp and the weft of a piece of fabric, as ordinarily used in tyre construction, is subjected to an unequal stress from the very nature of its position in the tyre. The Clark tyre seeks to overcome this by substituting for the one continuous strip of canvas, many small strips laid across the envelope in a slightly diagonal direction. By overlapping the strips in the first instance, and secondly by adjusting the amount of overlap at each point to suit the requirements of the space, it is possible to arrange for a uniform stretching of the material, and in principle at any rate this would appear to be the basis of a very sound job. Like every other invention it requires time and money to evolve a satisfactory practical solution of the main problem, and much time and money has consequently been spent on bringing the Clark tyre to the state of perfection that warrants its introduction to the public. Now that it has come forward it remains for motorists to give it the fair and square trial that it deserves.



Sketch illustrating the construction of the Clark tyre, showing the overlapping of the canvas strips of which the fabric is built up.

Some very big claims are made for the Clark tyre, but space prevents us from mentioning all of them, and so we must leave it to those interested to enquire of its merits from those responsible for its commercial development. According to the information that has been placed before us, the makers promise a very big initial mileage, and a more or less indefinite life when retreading is taken into account; at any rate a minimum guarantee of 4,000 miles' service is given in the case of the smallest tyre manufactured, and any casing that gives way before its tread is worn off, will be replaced free of charge.



THE KNIGHT-ARGYLL PATENT CASE.

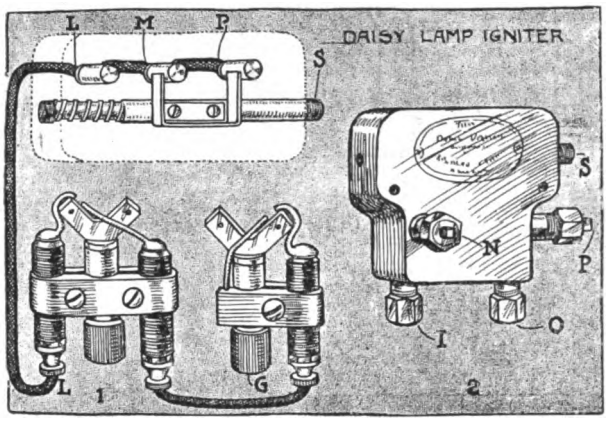
THERE has just been fought out in the Chancery division under Mr. Justice Neville the most important law suit that the automobile industry has witnessed for many a year, for it is no less than the trial for infringement of the Knight engine patents, which has been lodged by the Knight and Kilbourne Patents Co. against the Argyll Co. The Argyll Co., as every reader of the AUTO. will remember, introduced a highly interesting single-sleeve engine at the last Olympia show, and at that time immediate action was taken by the holders of the Knight patent rights with a view to restraining Messrs. Argyll from selling these cars, the claim being that the sleeve-valve engine in question constituted an infringement of the claims in the Knight patent. Some nine months have elapsed since the first move in this legal action took place, but in the interim the Argyll Co. has by no means been idle in the manufacture of its sleeve-valve cars, having indeed built a considerable number, which have been sold as fast as they have been made to their numerous customers, all of whom have been offered an indemnity against legal liability to allay any nervousness they might have felt about taking delivery of machines about to become the object of a very serious law suit.

The case was in the courts for a week, during which time the judge had to listen to the arguments and explanations of learned counsel backed up by the testimony of many well-known engineers who have been retained in the capacity of expert witnesses. The arguments were technical and elaborate and the case being still *sub judice* we must patiently await the judge's summing up which it is expected will be given with his judgment on the case some time this week.

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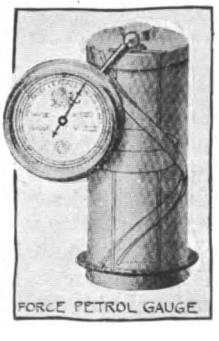
FOREIGN MISCELLANY.

Daisy acetylene lamp-igniter.—The Simkin Manufacturing Co., 1507, Michigan Avenue, Chicago, Ill., is now marketing the Daisy electric system for lighting acetylene lamps. The principal feature of this system is that it utilises the magneto current for igniting the acetylene. The Daisy controller, which is constructed to regulate the flow of gas to the lamps and contains a switch for producing a spark at the headlight igniter, is shown in Fig. 2. This device is composed of two sections, the gas-transfer ports and valves, and the electrical portion, consisting of the magneto-wire to the controller and one hence to a plug and a switch which, if pressed, breaks the circuit from the magneto-terminal to the spark-plug and connects the magneto conduits to the headlight igniter, which is then thrown into operation.



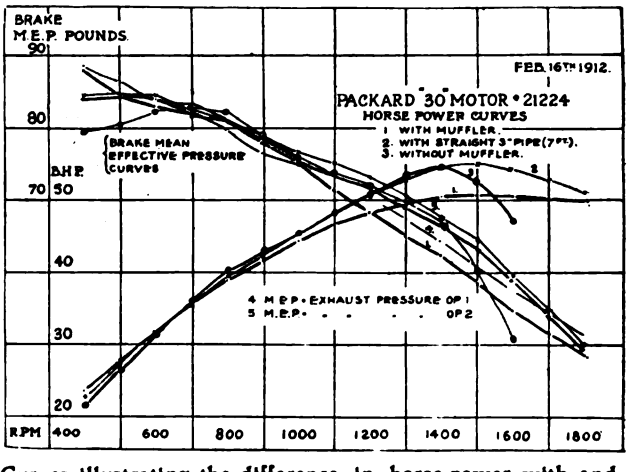
The gas-regulating mechanism consists of a needle-valve, N, which opens or closes the pipe from the tank to the burners. The desired pressure is given to the gas by passing it through a passage regulated by a needle, P, the gas entering at I, flowing past needles, N and P, and out through O to the lights. The switch, S, Fig. 2, is illustrated in detail in Fig. 1. The wire, L, leads to the igniter, M to the magneto-terminal, and P to the spark-plug. The channel-shaped switch body is carried on the spring-controlled shaft, S, connecting M and P; if, however, the shaft, D, is pushed in it short-circuits the current, which then passes from M to L on the controller, thence to L on the burner, and through the two igniters, where it produces two sparks, being finally grounded to the magneto from the burner-terminal, G.—*The Automobile.*

The Force petrol-gauge operates on the same principle as the Whitaker's patent water-indicator, which can be seen fitted to the tenders of a large number of locomotives in this country. An internal screw-thread causes the float contained in the apparatus to rotate as it rises or falls; this motion is transmitted to an external dial by means of rods passing through the float and a couple of small bevel-gears, as shown in the illustration.—*Pratique Automobile.*



Engine dust.—In view of the possibilities for cleanliness of the dashboard type of radiator and the centrifugal type, such as is now much employed in French truck design, it would seem that the present system of radiator construction can be much improved upon. The idea of employing a powerful air current to draw into and through the engine compartment all the road dust that can be pulled into an open grill extending across the front of the machine, is not pleasing mechanically. It necessitates making considerable outlays in design and construction to protect delicate moving parts, not only from dust, but from driving rain and splashing muddy water, and while it has caused motors to be much better housed and protected than they might otherwise have been, it would seem that the expense involved is hardly justified where simpler means of attaining the same end are available. It is by no means a difficult matter to completely isolate the air blast for the radiator and leave the motor in a sealed compartment, if only it is considered sufficiently desirable to do so.—*Automobile Topics.*

Silencer trials by the Packard Co.—In the accompanying diagram the power-curve labelled 1 represents the results attained with the muffler attached to the motor. Curve 2 is taken with a straight 3-in. pipe 7 ft. in length, and curve 3 is taken with the muffler detached from the line altogether. The upper curves in the diagram show



Curves illustrating the difference in horse-power with and without muffler. Mean effective pressures also shown.

the calculated mean effective pressures corresponding to the horse-powers developed in curves 1, 2 and 3.

The results of the test are given in the following table:

r.p.m.	h.p. with muffler attached.	h.p. without muffler.	h.p. difference. Less.	Greater.	Corresponding speed m.p.h.
500	23·7	21·5	−2·2	...	17
600	27·8	26·2	−1·6	...	20
700	31·7	31·2	−0·5	...	23
800	33·8	36·0	...	·2	27
900	38·9	40·0	...	1·1	30
1,000	41·6	43·0	.	1·4	33
1,100	44·2	45·6	...	1·3	37
1,200	46·6	48·2	...	1·6	40
1,300	48·1	51·0	...	2·9	43
1,400	49·2	53·4	...	4·2	47
1,500	50·7	54·7	...	4·0	50
Total average	...	41·0		1·13	

From this table it can be seen that the average difference in power gained by removing the muffler varies between $2\frac{3}{4}$-h.p. and $1\frac{1}{8}$-h.p. The removal of the muffler gives the same results as a cut-out having an efficiency of 100 per cent. The differences in power caused by using the cut-out will be even less than those shown in the curves and tabulation.—*The Automobile.*

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting of the Management Committee was held on Monday last. Present: Mr. A. J. Allison, presiding, Mr. A. Holmes, Deputy Chairman, Mr. J. Cates, Vice-President, Mr. H. Pye, Trustee. Committee: Messrs. Shaw, Moores, Holland No. 2, Rawson, Emmerson, Tyler, and Hardy.

The minutes of the previous meeting were read and confirmed.

Applications for membership having been dealt with, the application for honorary membership by Mr. Savage, of the Metropole Dining Rooms, Brighton, was reconsidered. A letter was read from the applicant stating that he thought the committee had been misled as regards charges. Mr. Pye said that he was sorry that through leaving early the previous week he had not been able to put in a good word for Mr. Savage. Having stayed at the dining rooms he was more than satisfied with the charges made, and the efforts of the proprietor to make chauffeurs comfortable. Mr. Moores and Mr. Shaw endorsed Mr. Pye's statement, and the committee unanimously agreed to grant the application, and forward the sign if requested.

Legal Department.

A letter was read from the solicitor with reference to the case of member No. 823, summoned for exceeding the speed limit, the result being a fine of 10*s.*, including costs. The secretary reported having used the power given him in cases of emergency. Member No. 636 applied for legal aid at Richmond, on Saturday the 6th, at 11 o'clock, the case to be heard on Monday 8th. It was hardly fair to the officials that such short notice should be given, but the member had not intended to call upon the Society to defend him. The offence was committed whilst on a temporary job, but having obtained a permanent job to start on the day when he was summoned to appear, he had found it impossible to answer the summons in person. Mr. Appleton had been instructed, and arrangements made for the defence of the member.

The committee endorsed the secretary's action, and accepted the member's explanation for not giving the necessary notice, which might have caused inconvenience to the solicitor.

The secretary submitted the solicitor's account for the month of June. The committee expressed their satisfaction at the decreased amount of fines, and ordered the account to be paid forthwith.

Mr. Holland brought before the notice of the committee a case wherein a member recently elected had obtained admission by making a false declaration.

The secretary was instructed to inquire into the case and report at the next meeting.

Mr. Holland said that if it was proved that the reference given by the previous employer was a false one, he would move that the matter be placed in the hands of the solicitor with a view to prosecution.

The secretary reported the interest taken by the members in their new club premises, and the fact that a record billiard break of ninety-two had been made by Mr. P. Holland, No. 2. Arrangements were being made to play a series of games with the chauffeurs of the Wimbledon Garage. It had been suggested that a cup should be put up, and the winner should hold the cup until some *bona fide* society of chauffeurs or garage club challenged them to make good their claim to retain it, each winning club to have their name engraved on the cup, a committee being formed to receive challenges, arrange the contests, and decide the right to compete for the cup.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.





N.S.C. GARAGES, No. 6.—The Imperial Motor Works, 38, Holdenhurst Road, Bournemouth.

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The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

Members Please Note.—On Monday, July 15th, at 8.30. Open night. Resolution by P. Holland: "That the Society add to their Parliamentary programme the need for one day's rest in seven for chauffeurs." The Insurance Act (debate) opened by the secretary. Ten minutes for grumblers.

Accepted for Membership.

Percy Wood, London, S.W.
John H. Nash, London, S.W.
George C. Weeks, London, S.W.
Charles Chappell, London, S.W.
Sidney Cox, Putney, S.W.
G. W. Stokes, Preston, Lancs.

Applications for Membership.

Albert T. Coleman, Cranford.
Thomas Finson, London, S.W.
Percy Skerratt, Manchester.
John Gilson, Birmingham.
Simon Kcenraads, London, S.W.
Frank Woods, Poynton.
Oliver G. Sargeant, Southampton.
George H. Campbell, London, S.E.
Benjamin Trigg. Abergavenny.
Harold A. Griffiths, Stonehouse, Glos.
Edward Curtis, London, N.W.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed

Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.

CORRESPONDENCE.

The Cycle-Car.

SIR,—Your "Motor Cycle Musings," by Victor Hart, in the last issue of your excellent journal, which does not seem to be bound heart and soul to inducing readers to purchase new cars and accessories of your advertisers, and the fact that a comparatively small engined car has been so successful in the Grand Prix, coupled with your excellent article on the relationship of engine displacement and weight of vehicle, prompts me to tender the following notes. Clearly, generally the cost of motoring exceeds that anticipated by those who are not carried away by enthusiasm. Enhanced cost is largely due in my opinion to several causes. Firstly, manufacturers of chassis have to make them strong enough to take heavy bodies, which means more weight than is really necessary for the open touring car, the B.S.A being perhaps the chief exception to this rule. As weight is increased so the speed, up-hill particularly, is diminished. Then, again, so as to drive the car up-hill on top-gear, the engine is frequently (I am talking as a repairer) pulled to pieces by the quick revolutions. After all, I think the other members of the Press are to be blamed for leading the public to demand such a large proportion of hill-climbing on top gear. Fuel consumption and the cost of running will be materially less if the engine could be driven on open throttle and the speed controlled by resistance. The large amount of power absorbed in double reduction drives makes it rather difficult to attain this even with four speeds, and as manufacturers have not to teach the public what they want but have simply to supply what the public believe they want, I look to the cycle-car—where the running costs must be reduced to the very minimum if the trade is to be a permanent one—as likely to contribute to the reduction all round of the cost of motoring. The live back axle cannot be considered satisfactory in the long run. Its dead weight on the tyres is so considerable, and dead weight and high centre of gravity are the chief contributory causes of high tyre costs. Again, there is a temptation to fit new cars with the cheapest tyres, to which fact the average purchaser does not give enough attention. In fact, it is impossible, I find, to get the majority of owners and owner drivers to increase the size of the tyres because they look so much at the first cost. In studying the matter of cycle-car design it is first necessary to find what the public require, I think it is somewhat as follows subject to the desiderata that there are two seats, side by side, and the running costs average about 2*d.* per mile.

The engine, if air-cooled, must be readily started from the driver's seat so that there is no temptation to run the engine other than when propelling the vehicle. The price must be somewhere in the neighbourhood of £100. It is desirable, if not imperative, to have a 3 or 4-cylinder engine or 2-cylinder 2-cycle engine and 4 speeds forward and reverse and 4 wheels, because with the 3-wheeler one wheel is almost necessarily running on the sharp flints between the cart tracks. It is advisable to have the track, so that it can run in the cart tracks because with many cars the life of the machine is materially shortened by running on the sides of the ruts, for after all not all of us keep to the main roads and many who frequent only the main road find a delight in the byways away from the noise and hustle. What the many who cannot afford 4*d.* or 5*d.* per mile require, I think, is a vehicle that will comfortably seat two and which will not cost more than 2*d.* per mile when used considerably this is no more than a motor bicycle, in fact less than the average powerful bicycle and side-car.

The cause of many derangements with the motor cycle is the amount of vibration of the mechanism resulting from the absence of springs, therefore the cycle-car must have long, easy springs.

The case of the cycle-car is, I find, similar to that of the flying-machine, not only should the engine be highly efficient, being air cooled, but it should be readily started without leaving the seat, and the efficiency of the transmission of all speeds must be as high as the present state of engineering permits, and I find that the long easy springing, coupled with the minimum amount of dead weight on the tyres, alone contributes always to the efficiency of the transmission in running conditions. I think that the large influx of American cars will teach many owners that the first cost is by no means the cost of motoring, and although many of the American cars are commendably light, the high centre of gravity negatives the absence of excessive dead weight.

Mr. Victor Hart has evidently a most useful experience with air-cooled engines applied to cycle-cars, but there is one risk with air-cooled engines, namely, the excessive proportion of fuel fed to the engine by the average tinker-owner who thinks that more fuel gives more power. I am sure many motor bicycle engines have been ruined for this very reason.

Penge. A. E. PARNACOTT.

Wheels in the Grand Prix.

SIR,—Will you be kind enough to give me the hospitality of your valuable paper for a few lines. I should have as usual abstained from making any statements, but it is necessary to remove a false impression which has been circulated in conjunction with the Goodyear steel wheels during the Grand Prix on our cars.

We had some trouble the first day through the nave plate bolts working loose, some of them shearing off, but this had nothing to do with the Goodyear wheels, which gave every satisfaction. This trouble was easily overcome on the second day by tightening up the nave plate nuts.

The trial was such a severe one that it is surprising that wheels only weighing 26 lbs. could stand such a test. The cars attained a speed of 96 miles per hour, the average for the two days being 65 miles per hour.

I think the Goodyear Co. are to be complimented for producing such a wheel.

For the SUNBEAM MOTOR CAR CO., LTD.
Wolverhampton. L. COATALEN, Chief Engineer.

Motor Cars and Standardisation.

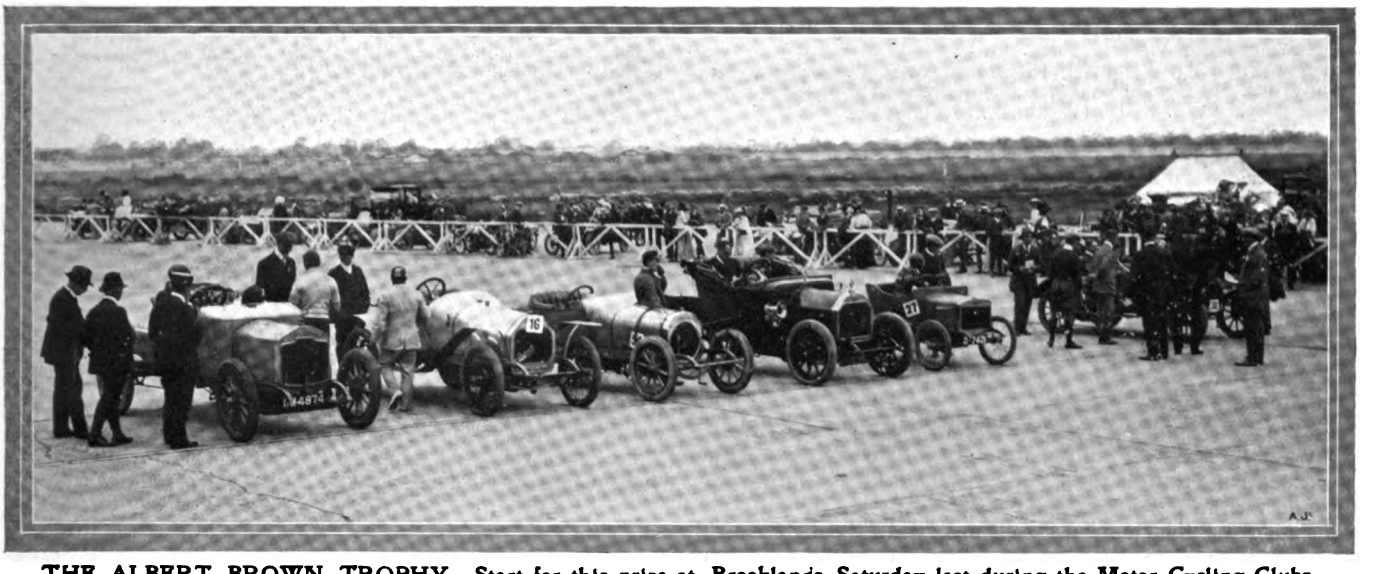
THE work of standardising motor car parts is now to be officially recognised by the Engineering Standards Committee. This was decided upon at a conference of those interested held the other day at the Surveyors' Institution. Those invited to the Congress were formed into a sectional committee to deal with the matter.

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THE M.C.C. AT BROOKLANDS.

THERE is no mistake about the genuine enthusiasm of those who assemble at the various functions of the Motor Cycling Club. Nothing was lacking in this connection at the race meeting held at Brooklands last Saturday. And they were justified, for a very pleasant afternoon and some capital sport resulted from the programme, which contained no less than eleven races, the first of which was due to start at 2 p.m. It speaks well for the committee and officers of the club that the enormous programme was carried through without a hitch of any kind and with such commendable punctuality that by 7.30 Mrs. F. J. Jenkins was able to present the prizes to the fortunate winners.

Six of the races were for motor cycles, two for sidecar combinations, and three for motor cars. Although no race for cycle cars was on the list, two of these vehicles figured prominently in the car races; the Club Car Championship for the coveted "Albert Brown" Challenge Trophy being won by Mr. C. M. Keiller's G.W.K. cycle car. The race for this trophy was undoubtedly the event of the day; it was a handicap over ten laps for cars not exceeding 30-h.p. The G.W.K. was entered only a short time before the actual start of the race, and was announced as an "extra runner," with a handicap of 6½ mins. from the three scratch cars, viz., Mr. A. Bray's Chenard-Walcker, Mr. S. G. Cummings' Crespelle, and Mr. F. J. Jenkins' Rover. The other two competitors were Mr. J. W. Steinberg's Sizaire-Naudin and Mr. C. Gordon Watson's "F.N." The race itself attracted the keenest interest of the spectators, and the consistent running and high speed of Mr. Keiller's G.W.K. were freely commented upon. The only serious challenge to it was Mr. Watson's "F.N.," which in the third lap had overtaken Mr. Steinberg's Sizaire, which had 7 mins. 20 secs. start from him. Slowly but steadily the "F.N." reduced the gap between it and the leading G.W.K., until in the eighth lap something was heard to "go wrong" with the "F.N." and it retired. Although he had such a long lead, Mr. Keiller was extremely lucky in winning by nearly 1 mile, as 50 yards before reaching the finishing line his engine suddenly gave up through a choked jet; but the impetus carried the car just about 2 yards over the line, and, much to his own surprise, the driver found himself the winner of the Albert Brown Trophy. Meanwhile the three scratch cars had a tussle on their own, and after a good deal of passing and re-passing, Mr. F. J. Jenkins, on his Rover, crossed the line as second, 300 yards ahead of Mr. S. G. Cummings' Crespelle, followed by Mr. Bray on his Chenard-Walcker. The last race of the day for the Club Cycle Championship, the "Harry Smith" Gold Challenge Cup, was also over 10 laps. Of the 30 entrants, 17 came under the starter's orders. After a very hotly-contested race, Mr. R. E. Guest, on a Matchless, was declared the winner, with Messrs. H. C. Mills on a water-cooled Green-Precision, and E. B. Ware on a Zenith, second and third respectively. The two Green-Precision machines, with their copper water-jacketed cylinders, attracted a considerable amount of attention. Although not actually winning a race they managed to gain two seconds and one third place. A splendid performance was put up in the ninth event, a race over two laps for sidecars, with passenger. In this, Mr. Barnes, on a Zenith, succeeded from scratch in crossing the line as second, 40 yards only behind the limit man, Mr. E. B. Ware, also on a Zenith, which had 2 min. 10 secs. start. While the winner's speed worked out at 44·39 m.p.h., that of Barnes, on a Zenith, was 63·9 m.p.h., a magnificent feat for a twin engine of 90 × 77½ mm. to travel over two laps, nearly 5½ miles, from a standing start at a speed of almost 64 m.p.h., with two passengers. Much cheering followed the issue of the official figures, and Mr. Barnes is to be congratulated on such a performance.



THE ALBERT BROWN TROPHY.—Start for this prize at Brooklands Saturday last during the Motor Cycling Clubs Annual Meeting. It was won by the G.W.K. cyclecar (No. 27).

The following are the results :—

Novices' 3-Lap Race.—Ordinary touring mounts with single-cylinder engines not exceeding 560 cc. capacity.

		Start	m.	s.
1.	N. O. Soresby (Rudge)		0	45
2.	D. H. Noble (Rover)		0	12
3.	H. C. Mills (Green-Precision)		scratch	

A run-away victory for Soresby. Winner's speed 60·54 m.p.h.

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Novices' 3-Lap Race.—Ordinary touring mounts with multi-cylinder engines of between 400 and 1,000 cc. capacity.

1. G. Brough (Brough) ... ... scratch
2. R. E. Guest (Matchless) 0 12
3. H. H. Huckle (Zenith) 1 12

200 yards between 1st and 2nd, ½ mile between 2nd and 3rd. Winner's speed 66·01 m.p.h.

Novices' 2-Lap Car Race.—For cars not exceeding 30-h.p.

1. W. J. Wainwright (12-h.p. Rover) ... 0 44
2. J. W. E. Steinberg (Sizaire-Naudin) ... 0 50

The race was actually won from scratch by Mr. Gordon Watson on F.N., who beat the Rover just at the finish, and crossed the line barely a length ahead, but his machine was *hors concours*, having been disqualified for not being in touring trim according to regulation. It was hard luck for Mr. Watson, who drove a splendid race. Winner's speed 46·08 m.p.h.

Three Lap Race.—For single-cylinder motor cycles—

1. J. Peachey (Premier) 2 30
2. R. Croucher (Kerry Abingdon) 2 30
3. F. C. North (Ariel) 0 51

Winner's speed 54·35 m.p.h.

Motor Cycle Race.—Over 3 laps, for machines of a cylinder capacity not exceeding 350 cc.—

1. F. Barnes (Zenith)... ... ... scratch
2. W. A. Jacobs (Singer) 0 18
3. P. C. Patterson (Humber) 0 30

Barnes rode a splendid race, and won in a canter from scratch. Winner's speed 51·49 m.p.h.

Motor Car Race.—Over three laps.

1. W. J. Wainwright (Rover) 2 54
2. C. Gordon Watson (F.N.) 1 48
3. C. M. Keiller (Vauxhall) ... ... scratch

Winner's speed 48·54 m.p.h.

Four-Lap Race.—For Motor Cycles of a cylinder capacity of between 400 and 1,000 cc.

1. R. Croucher (Kerry Abingdon) 4 4
2. H. C. Mills (Green-Precision) 1 36
3. E. B. Ware (Zenith) 1 36

Croucher, the limit man, ran away from the field and was never challenged. He won by half a lap, a few yards only between second and third. Speed 53·64 m.p.h.

Side-Car Race.—For single-cylinder engines. Two laps.

1. R. Croucher (Kerry Abingdon) 1 10
2. F. J. Watson (Swift) 0 56
3. F. C. North (Ariel) 0 34

This was a fine race and the handicapping was very good. All finished in a bunch with the winner leading by only ten yards. Watson beat North almost on the line by a bare length. Winner's speed 42·3 m.p.h..

Side-Car Race.—For twin-cylinder engines. Two laps.

1. E. B. Ware (Zenith) 2 10
2. F. Barnes (Zenith) ... ... scratch
3. F. C. Howard (Zenith) 1 10

The Zenith riders had the race all to themselves. Barnes drove at the terrific speed of nearly 70 m.p.h.—pity the poor passenger—and finished only 50 yards behind the winner who was the limit man. Winner's speed 44·39 m.p.h.; Barnes' speed (official) 63·9 m.p.h. (!)

Club Car Championship for the "Albert Brown" Trophy.—Ten laps.

	Start	m.	s.	Speed m.p.h.
1. C. M. Keiller (G.W.K.) ...	6	50	...	48·53
2. F. J. Jenkins (Rover) ...	scratch		...	58·25
3. S. G. Cummings (Crespelle)	scratch		...	57·10

Mr. Gordon Watson's "F.N.," that looked very much like winning, broke down in the eighth lap. Keiller crossed the line with engine stopped, owing to choked jet.

Club Cycle Championship for "Harry Smith" Gold Cup.—Ordinary touring machines. Ten laps.

	Start	m.	s.	Speed m.p.h.
1. R. E. Guest (Matchless) ...	2	40	...	63·95
2. H. C. Mills (Green-Precision)	4	0	...	60·77
3. E. B. Ware (Zenith) ...	4	0	...	58·66

There appeared to be some doubt as to who actually won, but Guest was after some time declared the winner, and the manner in which they accepted the decision speaks well for the sporting spirit of the competitors.

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RACING AT BROOKLANDS.

SPLENDID entries have been received for the meeting which is to be held at Brooklands to-day (Saturday), so that there is every promise of excellent sport. Although the Grand Prix race failed to fill, arrangements have been made for the three Sunbeam cars which finished first, second and third in the Coupe de *l'Auto* and third, fourth and fifth in the Grand Prix, to be on exhibition in the paddock. The cars will be driven by the same drivers as in the race, and during the afternoon will parade the track, and this part of the performance will probably devolve into a sprint race between them. In the 70 m.p.h. Short Handicap Messrs. Ridley and Borton will decide a private match. It will be remembered at one of last year's meetings these two gentlemen had a match, but then Mr. Borton was driving a foreign car and was so impressed by the running of his opponent's mount that he ordered one which he will use in the race.

2 p.m.—The July Private Competitors' Handicap.

About 5¾ miles.

Neville Hardy (17·9-h.p. Vauxhall)	McL. N. Staight (15·9-h.p.
L. Straker (15·9-h.p. S.C.A.R.)	S.C.A.R. "Sans Souci")
R. B. Whitehead (35·7-h.p. Berliet)	H. F. W. Farquharson (15·9-h.p.
M. Campbell (59·6-h.p. Darracq)	Sunbeam)
O. D. Pollak (15·9-h.p. S.C.A.R.)	Lord Exmouth (15·9-h.p. His-
E. Horniman (15·9-h.p. Gregoire)	pano-Suiza)
W. R. McBain (15·9-h.p. Delage)	S. J. Lacon (15·9-h.p. Gregoire)

2.25 p.m.—The Tenth Short Motor Cycle Handicap.

About 5¾ miles.

A. E. Pontin (Rudge)	G. E. Stanley (Singer)
Scott Aitken (Rudge)	P. Schmidt (Puch)
L. Straker (Jap)	H. Martin (Martin)
H. H. Square (Robin-Minerva)	A. G. Fenn (Humber*)
K. Yano (Bat*)	B. C. Remington (Rudge)
S. Day-Timson (Rudge)	F. H. Hannis (Jap)
P. Newbold (Zenith*)	R. L. Printz (Bat*)
James Gibbs (Humber*)	E. B. Ware (Zenith*)
Basil Collier (Rudge)	D. R. O'Donovan (Singer)
A. G. Walker (Rudge)	C. Pressland (Rudge)
J. A. Manners-Smith (Triumph)	L. L'E. Edwards (Rudge)
H. Jepson (Zenith)	E. Remington (Jap*)
J. Cocker (Singer)	* Twin-cylinder.

2.50 p.m.—The Sixth 70 m.p.h. Long Handicap.

About 8½ miles.

S. G. Cummings (13·9-h.p. Crespelle "Sel Rud")	W. T. Smith (13·9-h.p. Stoewer)
Neville Hardy (17·9-h.p. Vauxhall)	C. L. Smith (13·9-h.p. Le Gui)
Mc. L. N. Staight (15·9-h.p. S.C.A.R. "Sans Souci")	A. E. Ansell (10·4-h.p. Mathis)
Lord Exmouth (15·9-h.p. Hispano-Suiza)	W. G. Tuck (11·9-h.p. Humber)
M. O. Darby (11·5-h.p. M.A.F.)	F. Burgess (12-h.p. Calthorpe)
H. E. S. Huth (22·4-h.p. Ford)	L. T. R. Ridley (17·9-h.p. Adams)
Herbert Slater (15·9-h.p. Aquila)	A. H. Borton (19·2-h.p. Adams)
	E. Thomas (13·9-h.p. Jackson)
	W. R. McBain (15·9-h.p. Delage)

3.15 p.m.—The Seventh 100 m.p.h. Short Handicap.

About 5¾ miles.

G. Tysoe (15·9-h.p. Singer)	W. Dewis (41·9-h.p. Mercedes)
Percy E. Lambert (19·2-h.p. Austin "Pearley III")	H. A. Arkwright (59·6-h.p. Benz)
Eric Horniman (15·9-h.p. Gregoire)	C. M. Smith (19·6-h.p. Adams)
Gordon Watney (48·6-h.p. Mercedes)	M. Campbell (59·6-h.p. Darracq "Blue Bird")
	A. Boillot (15·1-h.p. Peugeot)

3.40 p.m.—Bedford Car Handicap. About 2 miles.

Mr. Yano's car is a 25·8-h.p.; the others 22·4-h.p.

K. Yano	Eric Tate	D. C. D. Potts	R. Booth
B. Wyndham	C. Gordon Bell	F. Bernard Burton	M. Knight-Gregson
T. L. Edwards	J. E. Lambie		
H. S. Saunderson	E. K. Davies		

4 p.m.—The Seventh 100 m.p.h. Long Handicap.

About 8½ miles.

R. B. Whitehead (35·7-h.p. Berliet)	H. F. W. Farquharson (15·9-h.p. Sunbeam)
M. Campbell (59·6-h.p. Darracq "Blue Bird")	Gordon Watney (48·6-h.p. Mercedes)
Percy Lambert (19·2-h.p. Austin "Pearley III")	W. Dewis (41·9-h.p. Mercedes)
G. Tysoe (15·9-h.p. Singer)	H. A. Arkwright (59·6-h.p. Benz)
J. Chalmers (35·7-h.p. Mercedes)	C. M. Smith (19·6-h.p. Adams)
	A. Boillot (15·1-h.p. Peugeot)

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4.25 p.m.—The Seventh 70 m.p.h. Short Handicap.

S. G. Cummings (13·9-h.p. Crespelle "Sel Rud")	Lord Exmouth (15·9-h.p. Hispano-Suiza)
Neville Hardy (17·9-h.p. Vauxhall)	Herbert Slater (15·9-h.p. Aquila)
O. D. Pollak (15·9-h.p. S.C.A.R. "Mud")	W. T. Smith (13·9-h.p. Stoewer)
	Edward Savill (13·9-h.p. Le Gui)
McL. N. Staight (15·9-h.p. S.C.A.R. "Sans Souci")	A. E. Ansell (10·4-h.p. Mathis)
	W. G. Tuck (11·9-h.p. Humber)
M. O. Darby (11·5-h.p. M.A.F.)	F. Burgess (12-h.p. Calthorpe)
E. Horniman (15·9-h.p. Gregoire)	L. T. R. Ridley (17·9-h.p. Adams)
E. Thomas (13·9-h.p. Jackson)	A. H. Borton (19·2-h.p. Adams)

During the progress of this race two of the entrants, Messrs. Borton and Ridley, will decide a private match of £100 a side.

4.50 p.m.—The July Sprint Handicap.

O. D. Pollak (5·9-h.p. S.C.A.R.)	Eric Horniman (15·9-h.p. Gregoire)
E. Lees (27·3-h.p. Metallurgique)	G. Watney (48·6-h.p. Mercedes)
Percy E. Lambert (19·2-h.p. Austin "Pearley III")	W. Dewis (41·9-h.p. Mercedes)
	H. A. Arkwright (59·6-h.p. Benz)

RACES, RECORDS, AND TRIALS.

A Grand Prix Race for 1913.

No doubt in view of the success of the recent Grand Prix Race, the Committee of the Automobile Club of France has decided to hold another Grand Prix Race next year and has asked the Commission Sportive to consider the detail.

R.A.C. Private Car Tests.

THERE has been a good response to the call of the R.A.C. for private cars, of all ages, which are to be tested for b.h.p., &c., at Brooklands, on Friday next. There is no entry fee and any owner who wishes to take part should notify the secretary of the R.A.C., Pall Mall, S.W. A record of the maximum speed of the car and the h.p. of the engine at that speed will be given to the owner of each car tested.

Standard Car Race.

WHEN the entries for the standard car race closed on Tuesday last 14 cars had been entered, including a trio of Singers, two Sunbeams, two Stars, and one each Turcat-Mery, Crespelle, S.C.A.R., Straker-Squire, Gregoire, Vinot, and Gladiator, The race takes place on Tuesday next at Brooklands, commencing at 11.30 a.m. The distance is 100 laps (about 277 miles), and the prizes £100, £40, and £10.

The Associates' Gala Day at Brooklands.

SEVEN events go to make up the complete programme for the Gala Day of the Royal Automobile Associated Clubs to be held at Brooklands on Saturday, July 27th. There will be a team hill-climb, a relay race, a motor cycle short distance handicap, a motor cycle inter-club team race, an all comers' open handicap race, a skilful driving race and hill-climb and (if time permits), blindfold driving competition, the last mentioned event being a sweepstake. Entries close on Saturday next. Weather permitting, some flying should be seen and the Royal Automobile and Associated Clubs are offering a prize for a bomb-dropping competition.

A New Napier Trial.

ALWAYS ingenious in the devising of tests for his cars, Mr. S. F. Edge has arranged with the R.A.C. to carry out a unique programme on the South Downs next week, when a 15-h.p. Colonial Napier will be run for three days over a circuit that consists of nothing much better than cart tracks, and over ground that represents as difficult work as any that is likely to be met with in Colonial motoring.

Tests with a Tyre Pump.

AN official certificate has been issued concerning a trial made on June 8th with a Kellogg air pump, made in the United States, and fitted as an integral part of the car to an extension of the gear-box of a 32·4-h.p. (R.A.C. rating) Peerless car, weighing 4,375 lbs.

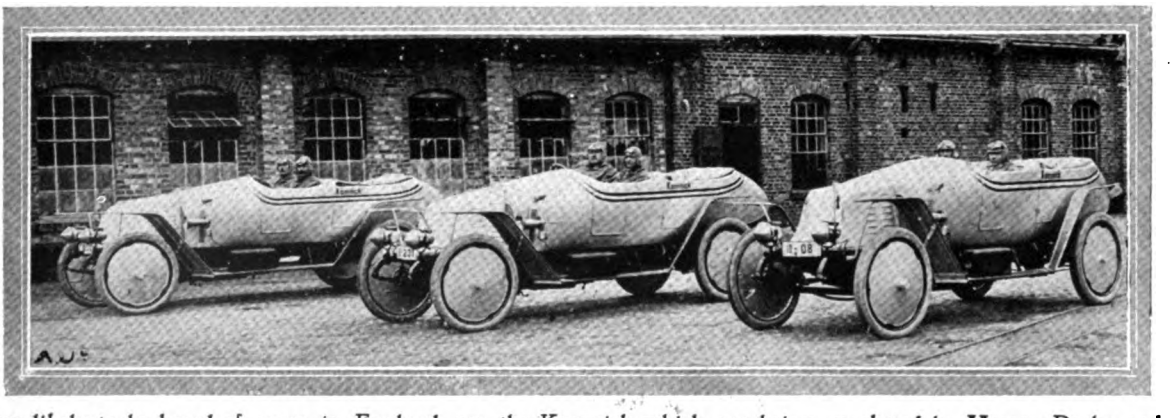
The device consists of a four-cylinder air compressor. The cylinders are provided with non-return ball valves in the heads, and air is drawn into the cylinders through holes situated at their lower end. These holes are uncovered by the piston on reaching the bottom of its stroke. The pistons are of cast-iron fitted with leather cups on the heads. A shaft provided with eccentrics actuates the pistons through connecting rods.

The cylinders of the pump are $\frac{7}{8}$ in. bore by $1\frac{1}{8}$ in. stroke, and excluding necessary gear wheels or clutches the pump weighed 9 lbs.

The pump was put into action when required by a clutch, the actuating lever of which was brought to the side of the car. The pump ran at the same number of revolutions as the engine. The tyres fitted to the car were 36 ins. by 5 ins.

The near front tyre was inflated to a pressure of 80 lbs. per square inch in 2 mins. $1\frac{1}{4}$ secs. The wheel was supported on a jack, and the engine was running at 500 revs. per min.

When the air passing from the end of the tyre connection was allowed to impinge from a distance of 1 in. upon a piece of white blotting paper for a period of 4 mins., a small amount of oil was deposited upon the paper.



Cars likely to be heard of more in England are the Komnick which are being marketed by Messrs. Darby and Weber, Ltd., of 118, Great Portland Street. A trio of these cars were amongst the entries for the Russian Imperial Race which started on June 30th, and above we give a photograph of these in connection with which, it will be remembered, that in last year's Russian race they secured first prize (the Prize of Honour of the Russian Imperial Association), also being awarded in addition two first prizes in their class besides other distinctions. The touring models for this year are 16-20-h.p., 20-30-h.p., 30-40-h.p., and 30-70-h.p. Prince Henry models.

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German Small Car Trials.

AT the start from Berlin on July 2nd of the German small car trial over a route of 1,508 kilometres to Dresden there were 57 competing vehicles, representing 19 different makes, and 56 of them completed the first stage to Stettin within the regulation time. The one car which fell out sustained a broken petrol-pipe, and reached its destination during the evening. On Wednesday week, the cars set out on the second stage to Posen, a distance of 302 kiloms., and one of the best performances was that by the Loreley car, which took 6 h. 29 m. for the distance, the speed averaging 46·85 m.p.h. The third stage, to Breslau, was completed on the following day, while the finish was at Dresden on Saturday.

Four teams of three finished without losing marks, these being the representatives of the Hansa, Protos, Stoewer, and Polyphon firms. Each of these firms will receive the special gold medal.

The Czar's Cup.

THE two British cars running in the Russian Reliability Trial started off well, and the 40-h.p. Austin, entered by Mr. Kendal, won the preliminary kilom. speed trials at St. Petersburg, attaining a speed of 80 m.p.h. On June 30th, the trial started with the run to Narva, when all the competitors got through without loss of marks, but the subsequent stages were very trying, the roads being in a terrible state, the cars sometimes being up to the axle-caps in mud. At the end of the second stage, at Revel, the two Bugatti cars withdrew, while others, for opening the bonnet in order to effect adjustments, lost marks during the run to Jurieff on the 2nd inst. and to Riga on the following day.

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CURRENT ITEMS OF INTEREST.

The Much-Maligned Motor 'Bus and Accidents.

REPLYING to a question in the House of Commons, on Monday last, Mr. McKenna, the Home Secretary, said that there had been a steady increase in the number of persons killed by motor omnibuses in London, the increase in the number of these vehicles being only one factor in the case. The number of deaths caused by motor omnibuses during the last half year was 69. There were four reasons which might account to some extent for the apparent disproportion between the number of motor omnibus and tramway accidents: (1) The motor omnibus plied through the more congested streets, from which tramcars were excluded; (2) the tramlines were laid in the centre of the road, and that to a considerable extent forced other traffic to the side of the road, and therefore congested the more dangerous portion; (3) passengers by tramcars had to cross the danger zone to get to or from the car. Others often stepped off crowded footways in front of vehicles coming up behind them; (4) the mileage of omnibuses was substantially greater than that of tramcars. The actual number of vehicles licensed, therefore, did not in itself afford a fair means of comparison.

Motor 'Buses on Railway Bridges.

A curious action was heard at the Highgate Court the other day, when the Great Northern Railway Company summoned the London General Omnibus Company for running a motor omnibus, weighing six tons, over Crouch End railway bridge in defiance of a notice which stated that the bridge was insufficient to carry a vehicle of greater weight than five tons. The 'bus driver was also summoned. From the evidence, it appeared that the omnibus company had the right to ask leave of the Railway Company to run over the bridge, and if it was out of repair could compel its being put in repair. If it was argued that the bridge was not sufficiently strong to carry an omnibus, the Omnibus Company could call upon the Railway Company to appoint an arbitrator. Neither of these things had been done, however. A fine of 40*s.* was imposed on the L.G.O.C., and 10*s.* on the driver, the Co. to pay the costs, £5 5*s.* We comment on these proceedings elsewhere.



A group of those participating in the annual outing, and their friends, of the Acetylene Illuminating Co., which was held at Lyndhurst, when the General Manager, Mr. L. M. Fox, was indefatigable in his consideration for the comfort of the whole company.

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Motor Boating at Rochester.

LAST week-end the British Motor Boat Club held a two-day regatta on the River Medway at Rochester. Three races were on the programme for the first day, and in the first event, for cabin cruisers, the winner was Mr. Paxton's "Braemar" with Mr. A. J. Wilson's "Splash" a very good second, losing by only 11 secs. Mr. Comber's "Flora" was third. A handicap for boats whose speed exceeded seven knots brought out seven starters, including a new restricted class boat, Mr. Bell's "Fascination." The winner proved to be Mr. Lance Gamble's "Dyack," with Mr. O. Martin's "Vicuna II" second, and Mr. M. Brooke's "Baby VI" third. The third race was for the restricted class boats in which "Dyack" was again first with "Vicuna II" second, but "Angela" took the third prize. On Saturday four events were decided. A cabin cruiser race again opened the programme, and this time was won by Mr. T. A. Comber's "Flora," with the same owner's "Olinda" second, and Mr. W. N. McClean's "Allegro" third. In a handicap for the over ten knot boats, "Baby VI" was the winner with "Dyack" second and Mr. E. Martin's "Fugi Yami II" third. The third race was for the 21-ft. class in which victory went to "Dyack," with "Fugi Yami II" as the runner up, and the handicap for all comers resulted in another win for "Baby VI" with Mr. Desno's "Secret" taking second prize and "Dyack" third.

Cripples' Outing at Leicester.

YEAR by year greater success attends the cripples' outing organised by the Leicester A.C.; and at this year's outing, on Saturday last, the result of the club's appeal to its members for the loan of cars was so gratifying that for the first time it was possible to invite every member of the Cripples' Guild. The cripples, whose ages ranged from four years to seventy, were taken, by the invitation of Mrs. Perry Herrick, to Beaumanor, where they were entertained to high tea and found plenty of amusement.

Taxicabbies and the Insurance Act.

ACCORDING to a reply by Mr. Masterman, to a question in the House of Commons last week taxicab drivers are subject to compulsory insurance under Part I of the National Insurance Act although they are not paid wages.

Police Traps in Galloway.

VISITORS to Scotland who may be touring in the neighbourhood of Stranraer and Portpatrick should be careful at Lochans on the road between these two points, and at Caenryan on the way to Ballintrae from Stranraer. At both these points there are 10-mile limits, and the police are very active with their traps.

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PUBLICATIONS RECEIVED.

Rotax Car Lighting Instructions. The Rotax Motor Accessories Co., 43-5, Great Eastern Street, London, E.C.

The Automobile Association and Motor Union Foreign Handbook. London, S.E.: Charles Knight and Co., Ltd. The Automobile Association and Motor Union.

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NEW COMPANIES REGISTERED.

Private Companies.

Cygnus Motors, Ltd.—Capital £10,000, in £1 shares. Acquiring business carried on by W. E. Thornton, J. Wilson, F. H. Thornton, and J. Wilson, Jun., as the Swan Motor Manufacturing Co. at Frodsham, Cheshire. First directors, W. E. Thornton, F. H. Thornton, J. Wilson, Jun., and J. Wilson.

English Segment Rims, Ltd.—Capital £10,000, in £1 shares. Under agreement with Segment Motor Rim Co., Ltd.

Ed. J. Hardy and Co., Ltd.—Capital £15,000, in £1 shares. Acquiring business of manufacturers of and dealers in motor cars, motors, cycles, &c., carried on by E. J. Hardy, &c., at 118, Queen Victoria Road, Coventry, as Ed. J. Hardy and Co.

ROUNDABOUT NOTES.

Avon Tyres in Bristol.—The branch was opened for business immediately after Whitsuntide. Situated on Bristol Bridge, and facing directly down Victoria Street, the wide important thoroughfare leading from the Central railway station to the centre of the city, its position is one of the best in Bristol. The depôt will form a distributing centre for the West of England and South Wales, and is the fifth branch belonging to the company, the London one being opened in 1908, and Birmingham, Manchester and Glasgow in 1911. The branch manager is Mr. E. G. Warland, who has represented the firm in the West of England for some time past.

ON Saturday the employees of Crossley Motors Ltd. had their first annual picnic to Matlock Bath. The programme included dinner at 12.45 and tea at 6.30 p.m., the intervening time being spent in a cricket match and in visiting various places of interest. It is evident that there is a splendid feeling existing between employer and employees at the Crossley motor works, and under Mr. Letts' *régime* an athletic club is flourishing, with branches in connection with swimming, football, cricket, bowling and running. There is also a fine orchestra and a choral society, while Mr. C. G. Wridgway is forming a cycling club. At the tea, the vote of thanks to "Our Employers" was proposed by Mr. W. W. Davidson, works manager, and responded to by Sir Kenneth Crossley, Bart., and Mr. W. M. Letts.

WE understand that Siddeley-Deasy cars are always tested by their makers with Pratt's Taxi-bus motor spirit. This or other spirit of a similar grade can therefore be used with perfect confidence by purchasers of Siddeley-Deasy cars, without any sacrifice of efficiency.

FROM Rudge-Whitworth, Ltd., we learn that on all Peugeot cars in the recent Grand Prix Race the hand-operated bolt was removed from all the Rudge-Whitworth wheels. The Peugeot drivers, Boillot, Goux, Zuccarelli, and Thomas have raced on Rudge-Whitworth wheels (not always on Peugeot cars) for the last three years, and know quite well that the "safe" disclosing pawl is quite sufficient to hold the wheel in place, and that the hand-operated bolt is merely an insurance against indifferent fitting.

THE Tourist Trophy Races recently held in the Isle of Man by the Auto Cycle Union proved a splendid success for Price's motor cycle oils. Huile de Luxe was used by eight of the eleven riders, including the first six, who finished in the Junior Race, Mr. W. H. Bashall, the winner of this event, using the Summer Grade on his 2¾-h.p. Douglas. In the Senior Race, half of the successful riders used either Motorine A or Summer Huile de Luxe. Mr. J. R. Haswell used the former lubricant on the 3½-h.p. Triumph, the fastest single-cylinder machine, and the second to finish in this strenuous contest.



The new premises of the Avon India-rubber Co.'s branch at Bristol Bridge.

FOLLOWING on the success of the Hansa car which went through the Austrian Alpine tour and gained the Kaiserliche A.C. prize, three cars have been entered in the Berlin-Dresden tour. These cars are being handled in England by Mr. Frank Morriss.

DURING the Glasgow Fair holidays, which are the equivalent of the Whitsuntide holidays in England, the major portion of the Argyll motor works at Alexandria will be closed for ten days. Advantage will be taken of these holidays to add materially to the already extensive machine equipment of the works.

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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application ; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

13,853. June 10th, 1911. Date claimed under International Convention, June 24th, 1910. Improvements in or relating to Valve-mechanism for Internal Combustion Engines. C. S. Goby, 9915, Olivet Avenue, Cleveland, Ohio, U.S.A. This invention consists in the employment with the working

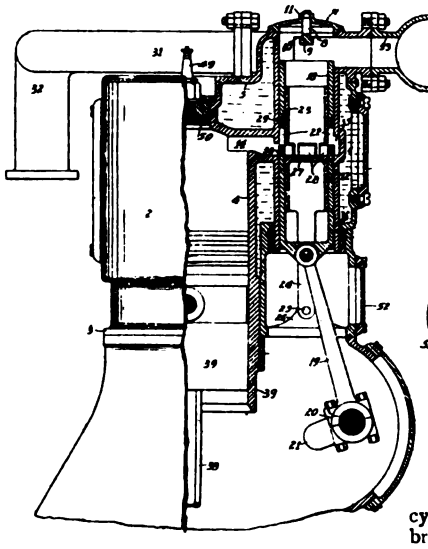


Fig 2

cylinder of the engine, of a valve casing having a port communicating with the cylinder, a hollow sliding-valve having open ends fitting within the valve casing, an anchored abutment or partition within the sliding-valve and connections for driving same from the engine-shaft. Fig. 1 is a view, partly in plan and partly in section of a four-stroke four-cylinder engine. Fig. 2 is an elevation partly in vertical section. The water jacket, 2, completely surrounds the cylinder, 4, and valves. Each cylinder is cast with the cover section, 5, the cover being integral with all of the cylinders. It is provided with cover plates, 7, anchored by means of bolts, 8, having each a cross-head, 9, at its lower end extending across the bore of the valve-chamber and engages a flange, 10, secured by nuts, 11. Cast with each cylinder, 4, are sleeves, 12, having segmental ports, 13, with a passage, 14. Within each sleeve, 12, is the cylindrical slide-valve, 18, connected at its lower end by a rod, 19, with a crank, 20, which is formed in the lay-shaft, 21. The slide-valve, 18, has a series of segmental ports, 22, adapted to communicate with the corresponding ports, 13, in the outer sleeve or valve casing, 12. Within the slide-valve, 18, is a sleeve, 23, anchored within the sliding-valve by an arm, 24. Adjacent sleeves are supported from a common pin, 25, extending through a web, 26, carried by the upper casting, 2. The sleeve, 23, has a partition, 27, and a series of segmental ports, 28, adapted to register with the ports, 22 and 13. The sleeves, 23 and 12, form a valve-seat for the cylindrical slide-valve, 18, and between the sleeve, 12, and the slide-valve, 18, the latter has packing rings, 29 and 30, above and below the segmental ports, 22, bearing against the sleeve, 12. Each cylinder is provided with a pair of similarly constructed valves, each valve comprising a sliding sleeve with an inner and outer sleeve between which it moves. One of these valves is for the supply of the combustible mixture to the cylinder and one is for the exhaust. The inlet valves for the end and the next adjacent

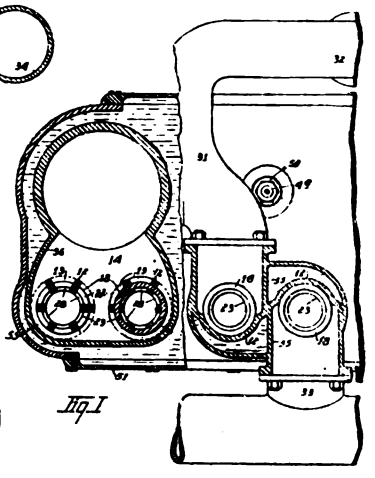
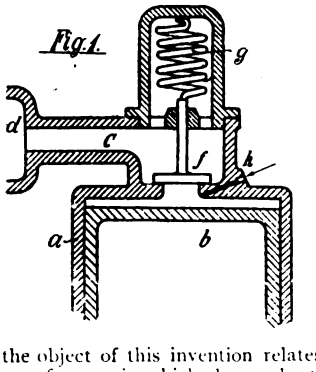


Fig 1

cylinder have a common inlet-pipe, 31, the branch pipes merging into a common supply pipe, 32. The outlet-valves are connected by branches, 33, with a common outlet-pipe, 34. The partition, 35, separates the inlet and exhaust gases. The usual connecting-rods, 38, connect with their respective pistons, 39. The shaft, 21, is driven at slower rate than the main shaft, the reduction being four to one. With the four-cylinder engine shown, four inlet and four exhaust valves will be provided. Each valve is connected with the lay-shaft, 21, by a connecting-rod, 19, and a crank, 20, and each crank is 45° from the next crank. Each cylinder is provided with the usual electrical igniting device, 49, carried by a plug, 50.—June 19th, 1912.

13,811. June 9th, 1911. Improvements in Means for Regulating Internal Combustion Engines of the Continuous Combustion Type. Georg Gambel, 47, Hummelstein, Nuremberg, Germany. The improvement which



forms the object of this invention relates to that type of motor in which the combustible and air are only admitted to the working cylinder during the working stroke for the purpose of combustion. The improvement consists of means whereby the quantity of one constituent of the charge air or fuel, is determined by the governor from the outside, whilst the other constituent is also controlled but by means of an independently operating valve. The quantity of the one is automatically adapted to the quantity of the other which is under external regulation, the further admission of the one constituent being automatically stopped when no more of the other constituent is available for further combustion. In a standard Diesel motor on the contrary the quantity of the combustible liquid introduced is determined by the governor while the quantity of air is not regulated at all but remains constant. Fig. 1 is a vertical section showing the connection between the working cylinder and a reservoir and an inlet-valve and the spring tending to open it. *a* is the cylinder, *b* the piston, *d* a reservoir for compressed air communicating by a pipe, *c*, with the cylinder, *a*, *f* is a valve arranged at the mouth of the compressed air passage, *c*, in the cylinder. A spring, *g*, tends constantly to lift the valve, *f*, off its seat, and *h* is the pipe for admitting the liquid fuel. The pressure in the reservoir, *d*, approximately corresponds to the compression pressure. The spring, *g*, is so adjusted that the valve, *f*, only opens at the end of the compression, whilst on the other hand the valve remains open so long as the compressed air only flows through it slowly corresponding to its consumption in the cylinder, whilst the valve is closed when the air passes through rapidly. The valve, *f*, will consequently only open automatically when the air contained in the cylinder, *a*, is compressed to about the pressure prevailing in the compressed air reservoir, otherwise it must be positively opened. Towards the end of the stroke the introduction of the fuel takes place through the inlet-valve, *h*, and the combustion commences. This combustion is effected approximately under a uniform pressure as an increase of pressure is avoided by its passing over into the pipe, *c*, and a decrease of pressure immediately makes more air available for combustion. When all the combustible is consumed a considerable fall of pressure in the cylinder immediately takes place, and the great difference of pressure which consequently results between the two faces of the valve, *f*, and also the high speed at which the compressed air tends to flow from the reservoir, *d*, into the cylinder, will close the valve, *f*, overcoming the resistance of the spring, *g*.—June 19th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder ; I.C. = internal combustion ; m = motors.

Applied for in 1911.

Published July 11th, 1912.

9,255. K. BRULL. Electrically-operated reversing gear.
11,204. A. H. ADAMS AND ADAMS MFG. CO. Starting I.C. engines.
14,061. T. BERLIZE. Valves.
14,536. DUNLOP PNEUMATIC TYRE CO. AND F. J. KEEGAN. Wheel rims.
14,360. E. VAUGHAN. Magnetos for lighting and ignition.

Applied for in 1912.

Published July 11th, 1912.

423. L. S. HACKNEY. Steering devices for traction vehicles.
2,419. J. G. PECK. Wheel.
3,700. A. G. HAEFENDEN AND KYNOCK, LTD. Valve gear.
5,343. K. J. E. HESSELMAN. Water-cooled I.C. engines.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 602. (No. 29, Vol. XVII.)] JULY 20, 1912. [Weekly, Price 3d. Post Free, 3½d.



A CHARMING SCENE IN WARWICKSHIRE.—The village of Stoneleigh, and appropriately in the centre of the picture one of the new Stoneleigh light cars which takes its name from this picturesque village, and has just been introduced by the Deasy Motor Car Manufacturing Co.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

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Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

Honouring the Victors.

In honouring those who have by their brilliant victory in a classic race vindicated for all time the claim of the British car to be considered the peer of any, the R.A.C. is seen at its best in the *rôle* of a society of encouragement. For a long time now the term has fallen from the pens of those whose business it is to record the happenings in automobilism more in satirical vein than with any belief that the Club any longer cared or concerned itself about the encouragement of the movement. We who have closer acquaintance with the aims and objects of the Club than is given to the outside world have never subscribed to the idea that the R.A.C. had fallen from its high estate to the simple status of a social club, concerning itself principally with the quality of its dinners. The trend of development and the paths which it has followed may have induced an apparent alteration in the Club's sporting policy, but it has been apparent rather than real—it is simply that the Club, like others, has had to adapt itself to changed conditions. So much by way of explanation and justification.

So far as the proceedings of a week ago, when the Club entertained the British Grand Prix teams, the spontaneity of the thing was its greatest charm. No sooner was the race for the Coupe de *l'Auto* lost and won than the Club had decided upon its programme—and a graceful one it was. But we must not award all the praise to the Club—those who gave it the opportunity of doing the right thing at the right time are surely to be considered. During the past week a cry has gone up to Heaven that the race is a decadent one. We have been—it is of no avail to deny it—soundly trounced by our rivals in the Olympic Games, and, to listen to the voice of the pessimist, there is no longer merit in us. But there is some comfort to be taken from the fact that even if we have no athletes or runners who can meet and defeat those of America and Sweden, we at least have our Sunbeams to show that in the industrial arts we are still capable of more than holding our own. Time was when the Continental constructor declined utterly to take the British car the least bit seriously. Then, later, he had to confess that we had made up all of the lost ground so far as concerned the ordinary car of commerce, but he still laid the flattering unction to his soul that he was pre-eminent in the racing field. And it must be admitted that he had some justification for thinking that way, for British cars have not made the most of their opportunities in the great Continental road races. In extenuation, however, it must be said that the racing game has never been regarded with the same seriousness over here that has been imparted to it in France, and that latterly the interest has been practically nil save among the three or four firms who figured this year in the Grand Prix. It was small wonder, then, that in calculating the chances the French or German racing firm left out the British competitors altogether. Now, thanks to Mr. Coatalen and his magnificent team of Sunbeams, our rivals know better, and it was only right that the body which is concerned most deeply with the sport and its governance in England should hasten to honour him and the colleagues and helpers who have assisted him in securing the triple crown for the British industry.

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The Dangers of the Streets.

A discussion which almost attained to the dimensions of a debate centred about a question put to the Home Secretary by Mr. Kellaway a few days ago on the number of street accidents caused by motor omnibuses and electric tramcars. The question took the form of a request for information regarding the numbers of these vehicles in use in London during the first six months of

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this year, and how many deaths were caused by each type of vehicle during that period. Mr. McKenna said in reply that the number of motor omnibuses was 2,461, and of electric tramcars 2,661. During the six months ended on June 30th, 81 fatal accidents and 1,605 accidents involving personal injury were caused by these vehicles; 69 deaths were caused by omnibuses and 12 by tramcars; personal injury was caused in 783 cases by omnibuses and 822 by tramcars.

In reply to a further question, the Home Secretary said:—

"There has been a steady increase in the number of persons killed by motor omnibuses in London, the increase in the number of vehicles being only one factor in the case. The number of deaths during the half-year ended June 30th was 69. The question raised by my hon. friend has been receiving anxious consideration. There are four reasons which may account to some extent for the apparent disproportion: (1) motor omnibuses ply through the more congested streets, from which tramcars are excluded; (2) tramway lines are laid in the centre of the roadway, which is the safest portion, but this construction, to a considerable extent, forces other traffic to the sides of roads, and therefore congests the more dangerous portion; (3) passengers by tramcar have to cross the danger zone to get to or from the car; others often step off crowded footways in front of vehicles coming up behind them; (4) the mileage of omnibuses is substantially greater than that of tramcars. The actual number of vehicles licensed, therefore, does not in itself afford a fair means of comparison."

We have quoted the answer in full, because it seems to afford official confirmation of the arguments we put forward a fortnight ago when discusssing the whole question of the regulation of London's street traffic. Taking the last part of the reply first, it will be seen that Mr. McKenna used the argument that the mileage of omnibuses must be taken into consideration collaterally with the number of accidents caused by them. That is a point we have often urged—that there is one true basis of comparative safety of any form of traffic—mileage. The portions of the answers numbered (2) and (3) are, we think, to be construed into a severe indictment of the electric tram and its utter unsuitability for a traffic system such as that of London. Tramway lines, says the Home Secretary, are laid in the safest portion of the roadway, but their presence there forces other traffic to the sides of the roadway and the dangerous parts become congested and, therefore, still more dangerous. By parity of reasoning, it is thus quite fair to lay upon the electric tramcar the responsibility for a far higher percentage of street accidents than the figures given would appear to indicate. Coming to (3), here again is an indication of how the electric tramway system as it is, and must be worked, acts as a sleeping partner, as it were, in the great business of piling up the sum total of our street accidents. "Passengers by tramcar have to cross the danger zone to get to or from the car." Now, the motor omnibus is compelled, by police regulations, to draw into the kerb to stop and set down or pick up, and its passengers thus have no crossing of danger zones to do. This, naturally, argues by comparison that if the motor omnibus were the only means of passenger transport, to the entire exclusion of the dangerous obstructive electric tram, the total of our street accidents would be materially reduced. Another point made by Mr. McKenna in the same section of his reply affects what observation has taught us is the most prolific of all causes of street accidents—the carelessness of foot-passengers. That, however, is a subject upon which it is possible to say much or little as the case may be. For our part, we have said all that is necessary on previous occasions, and will say no more now than that this is probably the most serious factor of all in the traffic problem. It is possible to punish the wrong-doer, but it is axiomatic that men cannot be made sober by Act of Parliament, and this equally applies to the careless pedestrian. He is constitutionally reckless, and he cannot be made careful by all the Acts of the two Houses that ever were passed.

The Standard Car Race.

It is unfortunate for the future of what at its inauguration promised to eventuate into a very promising racing fixture, that the over-anxiety of the R.A.C. to secure strict observance of its regulations should have resulted in making the Standard Car Race of 1912 somewhat of a fiasco. In comparison with last year's race, it can only be denoted as we have described it—a fiasco. When last year the Club announced that it intended to hold the race, a good many people prophesied that it would be an utter failure, that it would not attract entries, and that as a race and a spectacle it would be utterly futile. However, the entries did materialise, to the tune of a couple of dozen; spectacularly it was a most exciting event, the trade as a whole liked the idea of it, and it looked as though the Standard Car Race was destined to be a hardy and successful annual. The regulations were drawn pretty closely, and although we believe that one or two competitors did sail rather close to the wind in their interpretation of them, things worked very well on the whole, and at least the Club's officials saw nothing that would have brought any car in the race within a measurable distance of disqualification. All this being so, there seems to have been no good reason for the drastic alterations made in this year's programme of the race. To begin with, the withholding of the conditions until within three weeks of the race itself was, we think, unwise in that it gave would-be competitors too little time to make up their minds as to whether to enter or not and to get their cars tuned up for the race itself. It may be said that one of the Club's objects was that cars should not be subjected to a tuning-up process, but that they should be run exactly as delivered to the private purchaser. That is all very well in its way, but it will not attract entries from the trade, and certainly no private owner would enter unless proper time were allowed him to get his car into proper racing trim.

Then, the extension of the conditions to admit cars up to 20·1 rating has certainly militated against a large entry list. Undoubtedly the most popular car of the day is the 15·9, and had the race been limited to that rating as a maximum we do not think, even in spite of the short notice, the entries would have fallen much

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below those of last year. As it is, the cars of 20·1 rating only figure in the entry list to the number of six, while we know of at least eight or nine of the fifteens which would have figured in the race had their makers not been diverse to running simply to make a sort of holiday jaunt for the more powerful class.

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Why Insist on Absolute "Standard"?

Another weak point in the scheme of the race seems to be that of the too rigid insistence on "standard." Let us have a race for standard cars by all means, but allow a little latitude of interpretation of the word. To hold the race on the lines of the race for standard cars which was incorporated in the Brooklands programme at the last October meeting would, we think, be better. The conditions of that race, it will be remembered, allowed of variations in such details as final gear ratio, carburettor and induction piping, and ignition system, thus allowing competing manufacturers to try out and check the results of experimental work designed to be incorporated in new models. After all, the cars that we really want to get a line through for the information of the purchasing public are not the cars of 1912, which are getting towards the end of the series just now, but those which will be offered for public consumption in 1913. And apart from the question of public information, there is the matter of the altered design of detail for next season, which the regulations as at present drawn bar absolutely. Certainly those regulations would be better if there were a little more elasticity about them. Possibly the Club, in the light of of this year's experience, will bear this in mind when the matter of the 1913 race comes to be discussed.

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The Brooklands "Gala Day."

Entries for the "Gala Day" and Inter-club meet at Brooklands close to-day, and the great event takes place on Saturday next, the 27th inst. We wish the clubs the best of weather, a bumper entry, and a successful day's sport, but we have misgivings on the subject. Whether the defections will be made up or not it is impossible to say until the entries have actually closed, but we hear of at least one or two prominent clubs which sent teams to last year's "Gala" which are standing down next Saturday on account of the serious lapses in the management of the last meeting. That is the reason publicly assigned, but we understand there is still another reason in the background, which is that it is quite useless for a club which can only put an amateur team into the field to compete against clubs with a strong trade element, and with fast racing cars at their disposal. It is true that the rules have been amended somewhat, evidently with a view to avoiding this contingency of the trade-assisted clubs running away with all the prizes, but we cannot help thinking that this could have been done better by entirely altering the programme. There is really a serious want of originality about it, for the same events figure in it, with one exception, as were down for decision last year, and as none of them could be described by the wildest flight of imagination as an unqualified success, it would have been well to have had a change. However, there is nothing to be done now but to make the best of it, but it does not seem to be the best way of ensuring a successful meeting, to adopt again the events which were conspicuous failures on a previous occasion.

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Lord Russell and the L.C.C.

We are sorry to note that the appeal of the L.C.C. against the decision of Mr. Curtis Bennett, dismissing an information against Lord Russell for not supplying full particulars of a car he did not own at the time when required to do so for purposes of taxation, has succeeded before the Middlesex Sessions. The Court, having heard evidence and legal arguments, held that Lord Russell had not complied with the terms of the Revenue Act, 1869, and that he was liable, but as the action had been fought as a matter of principle the Court only imposed a penalty of one shilling. Apparently, if we read this decision aright, the local taxation authority can require anyone to furnish the fullest particulars of a car which has passed out of his possession months before, but just why the L.C.C. should require this to be done passes comprehension. It looks to us to be simply a piece of petty annoyance on the part of some Jack-in-office, backed up by the solicitors' department, which is becoming notorious for the vexatious character of many of the cases it brings before the Courts. The free-legal defence folk should look into the matter.

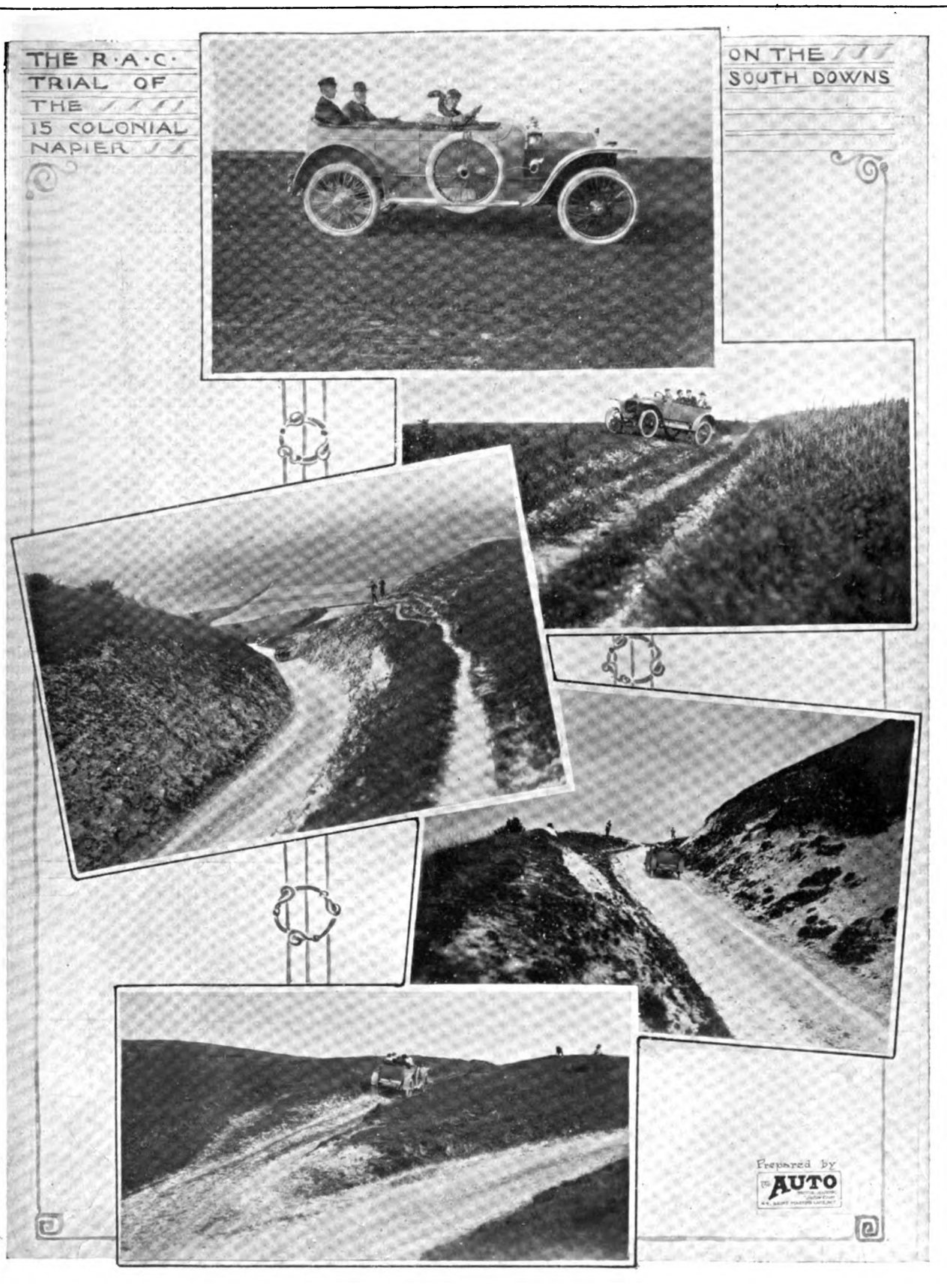
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Children and Motor Cars.

The Surrey Education Committee has taken a practical step by sending a letter to school managers in the county, asking them to instruct all teachers to impress on the children the need for the greatest caution when leaving footpaths to cross or walk on any road. The letter draws attention to the fact that during the week ending June 22nd no fewer than five children of school age were killed by motor cars in the county. In each case a verdict of accidental death was returned by the coroner's jury, thus showing, says the letter, that the deaths of these scholars might have been avoided by greater care on their part.

A short time ago we published in our editorial columns a reproduction of some pictures by that inimitable artist, J. Hassell, illustrating graphically the results of children's careless behaviour in street and road. We have seen nothing better calculated to impress upon the juvenile mind the danger incurred by want of due care, and we cannot help thinking that the Surrey Committee—and, in fact, every education authority—would do well to invest the necessary few shillings which would equip all the schools under their authority with a set of these pictures, which would have much more effect on the child-mind than all the verbal warnings that ever were uttered.

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WITH THE COLONIAL NAPIER ON THE SOUTH DOWNS DURING THE R.A.C. OFFICIAL TEST.— Some picturesque views showing samples of the "roads" over which the car was run. The pictures give little or no idea of the severity of the course, because they cannot show the bumping to which the car was subjected. In the top photo the car and its occupants are seen.

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AN ORIGINAL TEST.

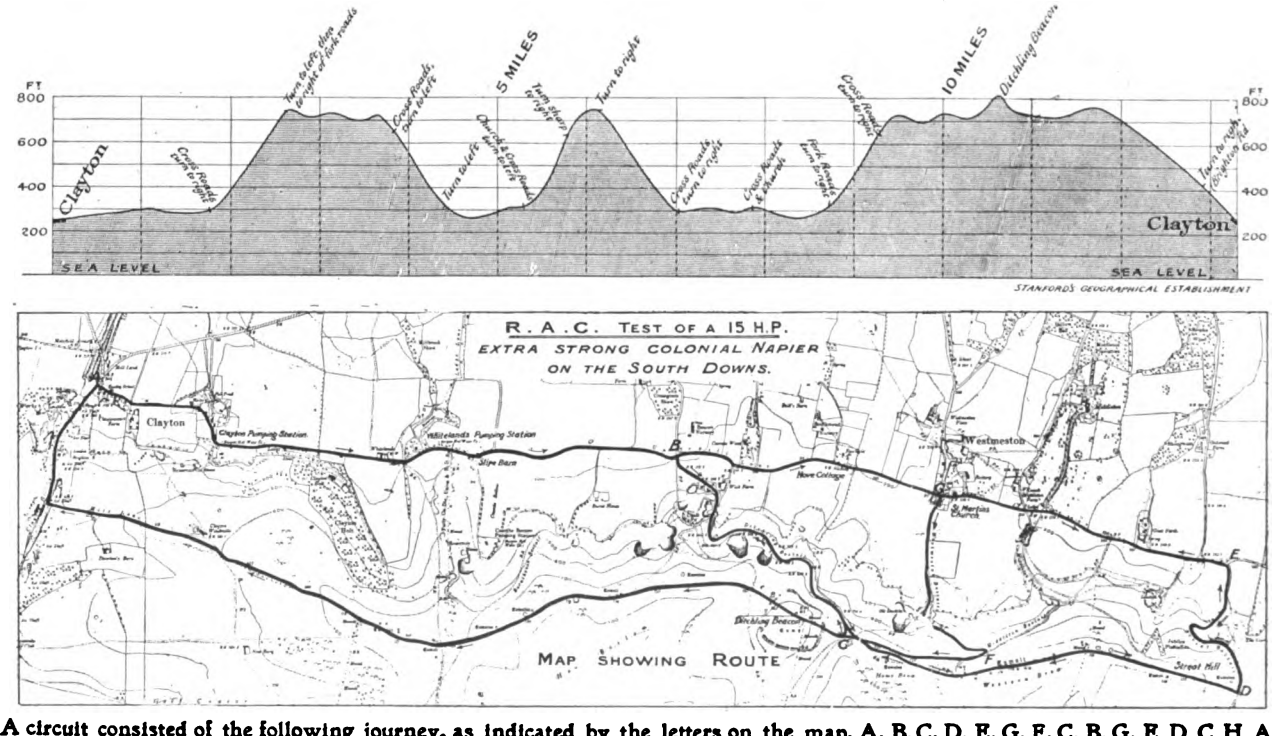
WITH A 15-H.P. NAPIER, UNDER COLONIAL CONDITIONS IN ENGLAND.

THERE has been carried out this week over the South Downs one of the most original, interesting and useful trials in the history of motoring, which is no less than the testing of a car under Colonial conditions in England. As readers of the AUTO. are thoroughly aware, Messrs. S. F. Edge take their Colonial business very seriously indeed, and the Colonial department, which is under the management of Mr. Basil Johnson, leaves no stone unturned to demonstrate the merits of the extra strong Colonial model, which constitutes its chief stock in trade. But it is not easy to arrange satisfactory tests of such a machine in England, and it is only as the outcome of much persevering ingenuity that the present trial was brought about at all. Many pedestrians doubtless know every inch of the South Downs, but we doubt if any motor car ever traversed the trackless regions of those grass-covered hills before a few enterprising members of the firm of S. F. Edge, Ltd., set themselves the task of devising a trial circuit in that locality. It needs confidence in the machine, and a peculiar delight in motoring through the unknown, to traverse much of the country that the Napier car on test has been doing for three days on end. Once the ground had been reduced to the proportions of a manœuvrable circuit, the risks assumed fairly recognisable proportions, but to our mind the trial that has just taken place, excellent as it is in itself, is in a sense not more the real substance of the test than was the shadow that it cast before it as a coming event in the form of those pioneer journeys in all directions that ultimately led to the selection of the trial course.

To anyone who has not been over the circuit, this may seem exaggerated, because they will not at first realise that although half the circuit takes place over roads, the remainder follows an occasional cart track or else runs over the native soil, which is without any sort of guiding line whatever. Thus, many awkward places and many odd predicaments, including the centre of a muddy sheep pond, had to be negotiated ere the somewhat complicated route that is illustrated by a sketch map herewith could be defined. And, the route itself is bad enough; which, if you doubt, ask any who spent an hour or two as unprejudiced passengers on the car. Never, we warrant, was Mr. Duncan, the genial official observer of the Royal Automobile Club, subjected to a severer shaking, indeed there was some rumour of a claim for damages to the nether garments of his suit of clothes, but, for all that, he, in common with the rest of the party, not excepting the car, took their jolting in good part.

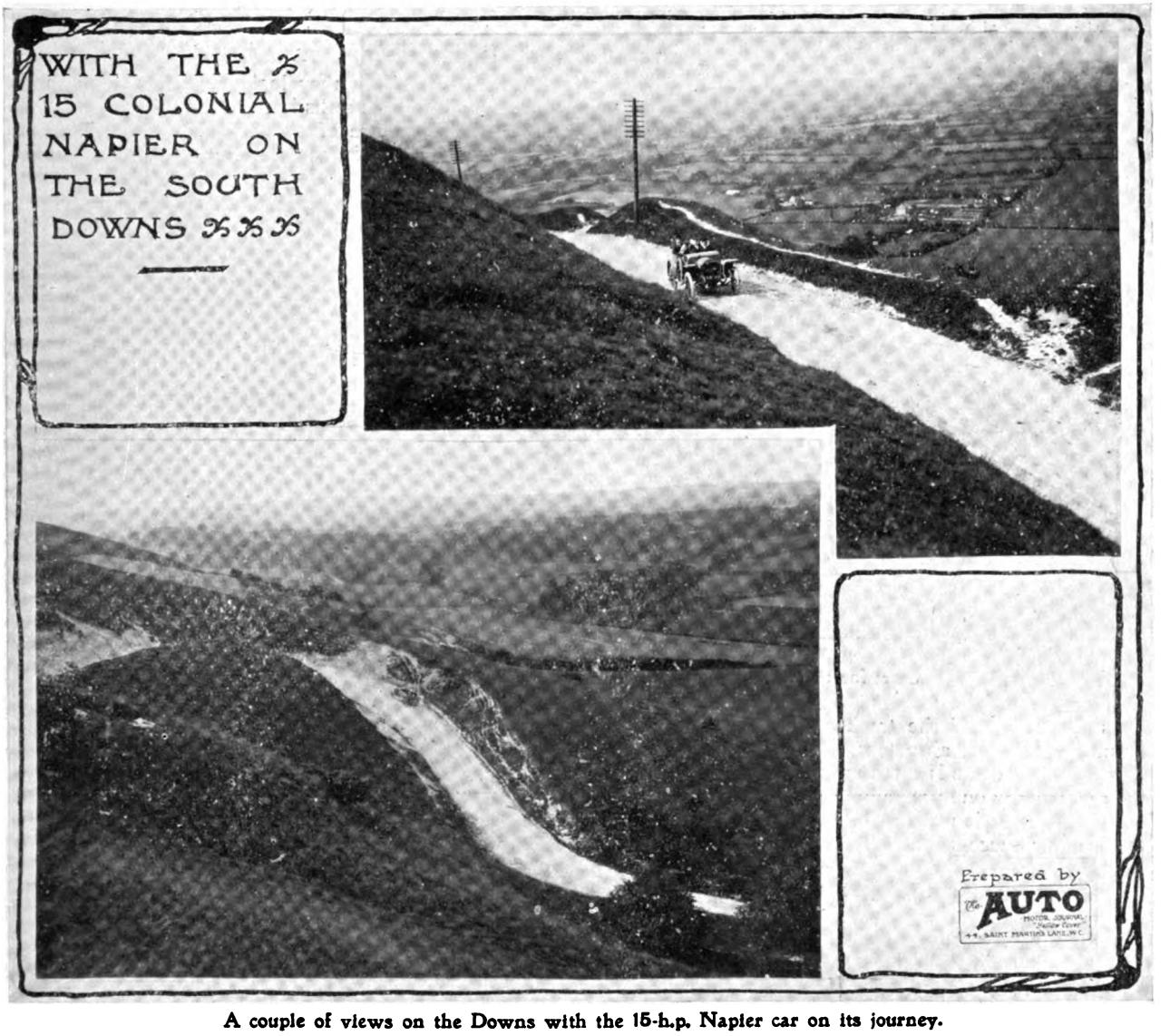
As has been implied, the trial was not wholly on the top of the Downs, and it was almost more severe on that account, because, as a matter of fact, the car was all the time running up and down the steep and tortuous hills that join the ridgeway with the valley below. Moreover, the circuit had been so ingeniously planned as to cause every hill of any consequence to be negotiated both up and down—that is to say, the route involved a kind of double figure of eight such that in some parts of the course the car would sometimes be going one way and sometimes the other. Another point in its favour was the fact that the circuit was only some fifteen miles in length, and some of the hills must have been climbed as many times in the course of the day.

Over the trackless grass, Mr. Macdonald, who piloted the car with a vigour and speed that was altogether alarming to one of the Colonial visitors who was present, reckoned to make up lost time, and in the absence of the speed limit and other traffic, with the exception of an occasional sheep, he would career along over the surface of the Downs in a manner that was most exhilarating



A circuit consisted of the following journey, as indicated by the letters on the map, A, B, C, D, E, G, F, C, B, G, E, D, C, H, A. Above is shown the contour of the circuit.

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A couple of views on the Downs with the 15-h.p. Napier car on its journey.

to see, especially when, as happened every now and again, he would run into what a yachtsman might term a choppy sea, and set the whole car with its human freight bouncing about in an extraordinarily diverting manner —to the onlooker.

Regarded technically, it was certainly a severe test on the whole of the machinery, and the springs especially would have suffered had they been otherwise than excellent. With such persistent hill climbing, too, and the hills thereabouts are "first speeders," there was every opportunity for the engine to get over-hot had the radiator service been otherwise than adequate for the requirements. The surface of the track, except on the few junction pieces of ordinary highway and on the grass surface already mentioned, was rough and treacherous in the extreme, for the cart tracks were frequently a foot deep, and the chalky road bed of the hills was coursed with gulleys.

One way and another, there is very little doubt that the trial was what it was intended to be—namely, a realistic imitation of Colonial conditions. It had its picturesque side, too, as the photographs which we reproduce will serve to show; for the scenery of the South Downs is delightful, especially when, in the present hot weather, it is one of the few places where the rays of the sun are tempered by an ever-present breeze.

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Doctors and the Petrol Tax.

A MEDICAL member recently drew the attention of the R.A.C. to the inconvenience caused by the practice of the Customs authorities in requiring the attendance of doctors between the hours of 12 and 1 to make their claims for petrol duty. It was pointed out that this was a time when they were mostly engaged with their patients.

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The matter was taken up with the Board of Customs and Excise, who have written a letter which states that the Board recognise that the practice may not be free from inconvenience in particular cases, and no objection will, therefore, be raised in future to members of the profession, who so desire, being relieved of the necessity of having their claims to rebate witnessed by an officer.

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BROOKLANDS JULY MEETING.

SMALL CROWD WATCHES CAPITAL SPORT.

NEVER in the history of the Weybridge Track has closer racing been seen at Brooklands than last Saturday. If the handicapping always worked out in the way it did on this occasion, we should not have to complain of the diminutive crowd that was spread out over the shady slopes of the enclosures. The small attendance is to be regretted as much from the point of view of the public as it is from that of the track authorities, because last Saturday, at least, absentees missed some really fine sport. A great fuss is often made when one or two of the races in any one programme produce a close finish, but on this occasion there was not one race in which the struggle for success was not carried right up to the finishing line.

Needless to say the heat was intense, and the atmosphere saturated with humidity, just the kind of air that is ideal for perfect carburation, a factor which in our opinion contributed largely to the splendid running of many of the cars.

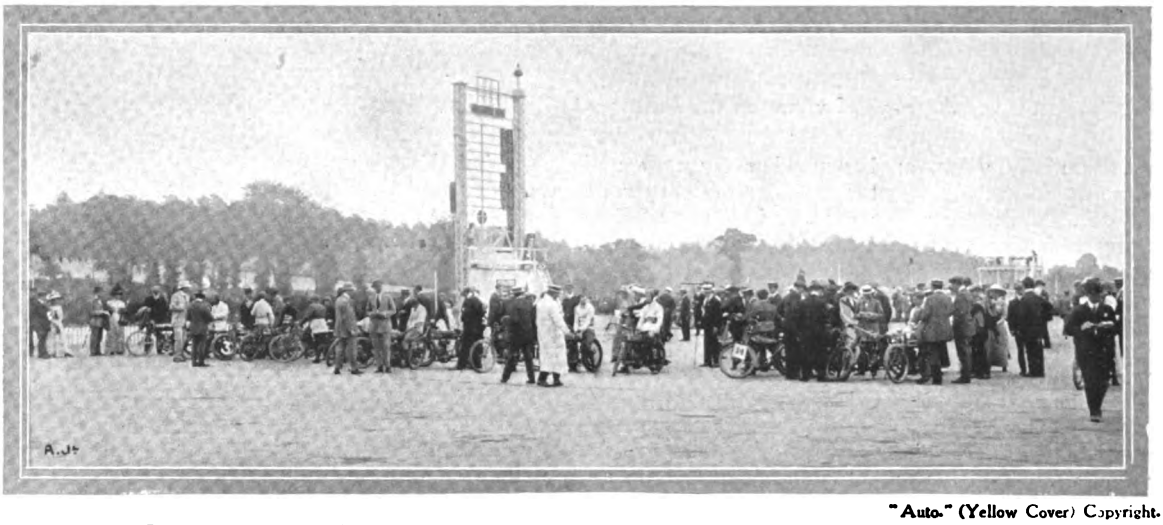
The *clou* of the meeting, of course, was the parade of the team of Sunbeam cars that had covered themselves with glory in the recent Grand Prix Race in France. Very neat and trim they looked as they stood in their specially decorated stalls in the paddock, and they were, naturally, the centre of an admiring crowd. The other English Grand Prix racers were conspicuous by their absence, and this fact was freely commented upon in the paddock. It was a pity, because the average crowd admires a sporting loser almost as much as the victor, and those who finished the race might at least have turned up and received their well deserved share of admiration.

But, after all, we are an undemonstrative people, for when the three Sunbeams were driven in parade along the finishing straight at almost walking pace, just to show how slowly they could go, as someone was heard to remark, the applause that greeted them was feeble to a degree. Only when they passed the newly-erected Press stand (which, by the way, was greatly appreciated by those pressmen who go to Brooklands to do some work, and for which we owe a debt of gratitude to the management of the track) was there a note of real enthusiasm in the cheering. The Sunbeams were handled by the same drivers who drove them to victory in the



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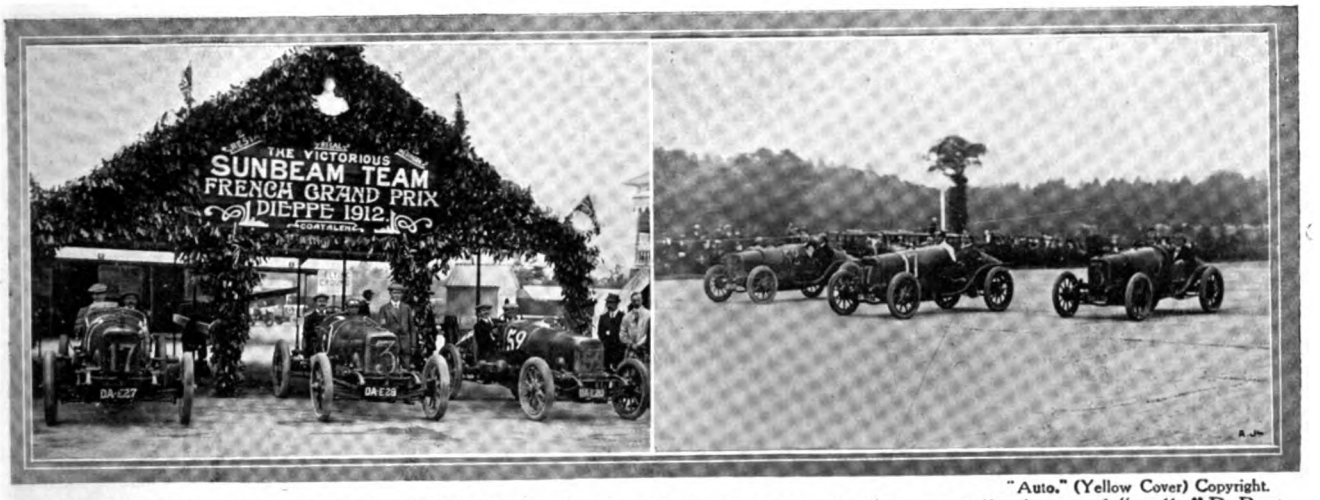
Start for the Sixth 70 m.p.h. Long Handicap at Brooklands July Meeting.



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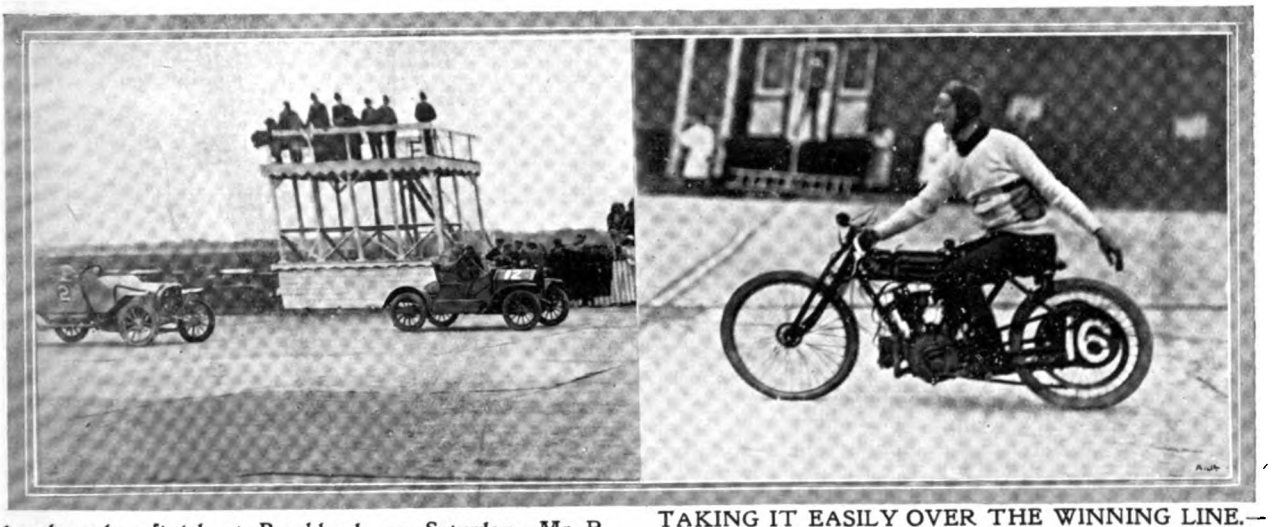
Lining up for the Tenth Short Motor Cycle Handicap at Brooklands on Saturday.

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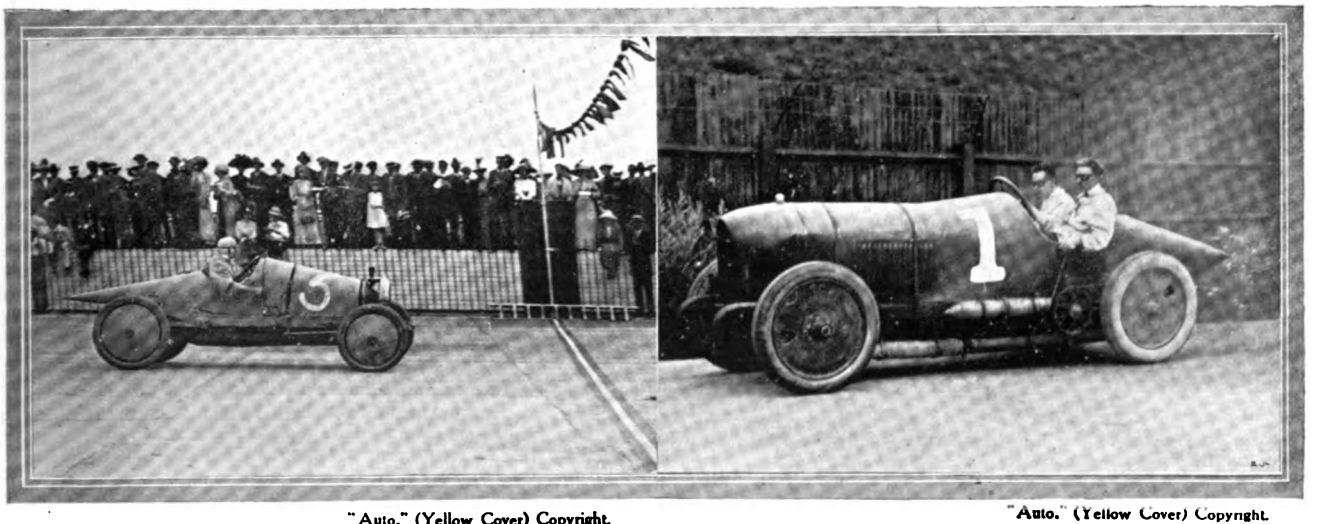
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THE WINNING GRAND PRIX SUNBEAMS.—On the left the three cars in their specially decorated "stalls," D. Resta being at the wheel of No. 17, V. Rigal No. 3, and E. Medinger No. 52. Mr. Coatalen is standing by the centre car. **On the right the three cars are lined up on the track ready for their parade and sprint race between themselves for a £10 cup, which was secured by Resta.**



Another close finish at Brooklands on Saturday.—Mr. R. Booth winning on his 22·4-h.p. Bedford from K. Yano on his 25·8-h.p. Bedford in the Bedford car handicap.

TAKING IT EASILY OVER THE WINNING LINE.—E. B. Ware, on his 2-cyl. Zenith, at the finish with the race well in hand for the Tenth Short Motor Cycle Handicap at Brooklands on Saturday.



"Auto." (Yellow Cover) Copyright.

Mr. F. Burgess, on Mr. G. W. Hands' 12-h.p. Calthorpe, finishing in the 70-m.p.h. Short Handicap.

"Auto." (Yellow Cover) Copyright.

L. G. Hornsted on the big racing Benz in which he started scratch for the July Sprint Handicap at Brooklands on Saturday.

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Grand Prix, viz., Rigal, the stern-looking Frenchman; Dario Resta, the ever smiling; and Medinger, a slim but jovial fellow who hails from Austria. Following the parade, the cars had between themselves a sprint race over 2 miles, in which the popular Dario Resta, after a fine tussle, managed to win from Rigal by a length and a half with Medinger only 30 yards behind.

Mr. Arkwright's big Benz, piloted by Hornsted, as usual attracted a great deal of attention, which it thoroughly merits. Although a racer pure and simple and as such capable of terrific speeds, the engine, when standing still in the paddock, ticks round at less than 300 revolutions a minute with no more noise than the regular beat of its exhaust. Although not so successful as usual, the car and driver were nevertheless in fine form, especially in the sprint race. According to an unofficial stop-watch, these two miles were covered by Hornsted in the incredibly short time of 1 min. 26⅕ secs. from a *standing* start, and in spite of it he only managed to come in fourth, a foot or two behind the third, Mr. Gordon Watney's 48·6-h.p. Mercedes, to whom he had conceded 15 secs. start. This, we regret to say, was the last appearance of the popular Mr. Hornsted on the big Benz, but we have reason to believe that ere long he will be seen again at the wheel of another car. That enthusiastic sportsman, Mr. Percy Lambert, scored the most popular victory of the day in the 100 m.p.h. Long Handicap with his so-far unlucky 19·2 Austin, "Pearley III." It was the first time that this much handicapped car was able to score a well deserved win on the track, getting home by 250 yards at an average speed of 80¼ m.p.h.

A report of the Aeroplane Handicap will be found in our contemporary, *Flight*.

The July Private Competitors' Handicap. About 5¾ miles.

The entrant of the winner to receive a cup, value £20; the entrant of the second a cup, value £12 10s.; and the entrant of the third a cup, value £7 10s.

Place.	Driver and Car.	Cylinder. Bore and Stroke. mm.	Capacity. cc.	Start. m. s.
1.	Viscount Exmouth (15·9-h.p. Hispano-Suiza)	80 × 180	3,619	1 0
2.	W. R. McBain (15·9-h.p. Delage)	80 × 149	2,996	1 16
3.	H. F. W. Farquharson (15·9-h.p. Sunbeam)	80 × 149	2,996	0 38

Also ran: M. Campbell (59·6-h.p. Darracq), 155 × 140 mm., 10,567 cc., scratch; R. B. Whitehead (35·7-h.p. Berliet), 120 × 140 mm., 6,334 cc., 34 s.; E. Horniman (15·9-h.p. Gregoire), 80 × 149, 2,996 cc., 52 s.; Neville Hardy (17·9-h.p. Vauxhall), 85 × 102 mm., 2,315 cc., 1 m. 46 s.; O. D. Pollak (15·9-h.p. S.C.A.R.), 80 × 140 mm., 2,815 cc., 54 s.; McL. N. Staight (15·9-h.p. S.C.A.R.), 80 × 120 mm., 2,413 cc., 1 m. 32 s.

A splendidly handicapped and hotly contested race; the Delage held the lead until it was passed in the second lap, between the aeroplane sheds and the fork, by the Hispano, which won by only a length. There was almost a dead-heat for second place, the Delage only leading by inches. Winner's speed 67½ m.p.h.

The Tenth Short Motor Cycle Handicap. 5¾ miles.

The entrant of the winner to receive £10, or cup at option; the entrant of the second £5, or cup at option; and the entrant of the third £3, or cup at option. For all classes of motor bicycles.

Place.	Rider and machine.	mm.	cc.	m. s.
1.	E. B. Ware (Zenith*)	76 × 54½	494	0 36
2.	N. G. Walker (Rudge)	85 × 88	499	0 36
3.	S. Day Timson (Rudge)	85 × 88	499	0 36
4.	J. A. M. Smith (Triumph)	85 × 88	499	0 36

* Twin-cylinder.

Eight out of the 22 starters were riding Rudge machines. Ware won by 50 yards, 30 yards between second and third, the rest followed closely in a bunch. Winner's speed 58½ m.p.h.

The Sixth 70 m.p.h. Long Handicap. 8½ miles.

The entrant of the winner to receive a cup, value £30; the entrant of the second a cup, value £15; and the entrant of the third a cup, value £7 10s.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	Neville Hardy (17·9-h.p. Vauxhall)	85 × 102	2,315	1 21
2.	F. Burgess (12-h.p. Calthorpe)	69½ × 125	1,896	0 42
3.	W. G. Tuck (11·9-h.p. Humber)	69 × 130	1,944	0 51

Also ran: S. G. Cummings (13·9-h.p. Crespelle), 75 × 150 mm., 2,651 cc., 1 m. 3 s.; W. R. McBain (15·9-h.p. Delage), 80 × 149 mm., 2,996 cc., 36 s.; W. Turner Smith (13·9-h.p. Stoewer), 75 × 88 mm., 1,555 cc., 1 m. 15 s.; L. T. R. Ridley (19·2-h.p. Adams), 88 × 120 mm., 2,920 cc., 51 s.; E. Thomas (13·9-h.p. Jackson), 75 × 150 mm., 2,651 cc., 1 m. 3 s.; A. H. Borton (19·2-h.p. Adams), 18 × 120 mm., 2,920 cc., 51 s.; McL. N. Staight (15·9-h.p. S.C.A.R.), 80 × 120 mm., 2,413 cc., 1 m.; C. A. G. O'Malley (11·5-h.p. M.A.F.), 68 × 90 mm., 1,307 cc., 3 m. 6 s.; C. L. Smith (13·9-h.p. Le Gui), 75 × 120 mm., 2,121 cc., 1 m. 3 s.

The Vauxhall, which carried a 4-seater touring body and two passengers, ran splendidly, and won by 20 yards, 50 yards separated second and third. Winner's speed 62½ m.p.h.

The Seventh 100 m.p.h Short Handicap. 5¾ miles.

The entrant of the winner to receive a cup, value £30; the entrant of the second a cup, value £15; and the entrant of the third a cup, value £7 10s.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	M. Campbell (59·6-h.p. Darracq)	155 × 140	10,567	0 34
3.	Dario Resta (41·9-h.p. Mercedes)	130 × 180	9,537	0 40
3.	W. G. Brown (48·6-h.p. Mercedes)	140 × 150	9,237	0 40

Also ran: P. E. Lambert (19·2-h.p. Austin), 88 × 115 mm., 2,798 cc., 58 s.; G. Tysoe (15·9-h.p. Singer), 80 × 130 mm., 2,614 cc., 48 s.; L. G. Hornsted (59·6-h.p. Benz), 155 × 200 mm., 15,095 cc., scratch; E. Horniman (15·9-h.p. Gregoire), 80 × 149 mm., 2,996 cc., 1 m. 26 s.; A. Boillot (15·1-h.p. Peugeot), 78 × 156 mm., 2,982 cc., 1 m. 4 s.

Campbell won by 150 yards, but there was a fine race between the two Mercedes and "Pearley III" which came in fourth only half a length behind the third. Resta was only inches ahead of Brown, who drove for Mr. Gordon Watney. Hornsted on the Benz was rather slow in starting, but got going in the straight and came in sixth. Winner's speed 84½ m.p.h.

Parade and Sprint Race of the Grand Prix Team of 15·9-h.p. Sunbeam Cars. 2 miles.

Bore 80 mm., stroke 149, cubic capacity 2,996.

1. Resta. 2. Rigal. 3. Medinger.

Winner's speed 69 m.p.h. for standing start.

The Bedford Car Handicap. 2 miles.

The entrant of the winner to receive a cup, presented by Bedford Motors, Ltd., value £10 10s.; the entrant of the second a cup, value £7 10s.; and the entrant of the third a cup, value £5.

Place.	Rider.	Start. m. s.
1.	R. Booth (22·4-h.p. Bedford)	0 38
2.	K. Yano (25·8-h.p. Bedford)	0 15
3.	T. L. Edwards (22·4-h.p. Bedford)	0 28

A very close race, R. Booth won by barely half a length, almost a dead-heat for third place. The speed was very good, 48¼ m.p.h., but the springing seems to be capable of much improvement. It is marvellous that some of the drivers could keep their seats, they were bumped about a great deal.

The Seventh 100 m.p.h. Long Handicap. 8½ miles.

The entrant of the winner to receive a cup, value £35; the entrant of the second a cup, value £20; and the entrant of the third a cup, value £10.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	P. E. Lambert (19·2-h.p. Austin)	88 × 115	2,798	1 27
2.	E. G. Morley (15·9-h.p. Sunbeam)	80 × 149	1,996	1 48
3.	D. Resta (41·9-h.p. Mercedes)	130 × 180	9,557	1 0

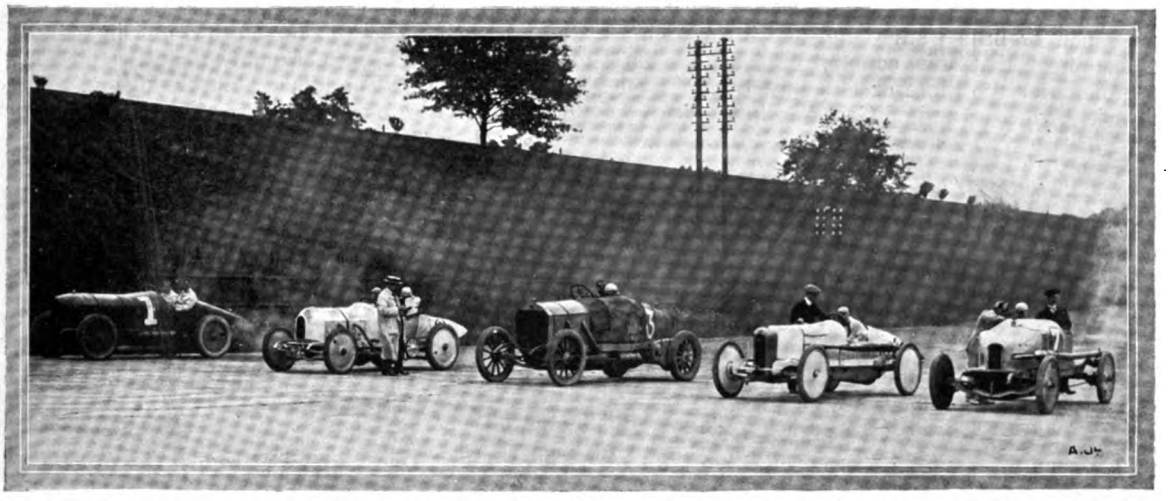
Also ran: G. Tysoe (15·9-h.p. Singer), 80 × 130 mm., 2,614 cc., 1 m. 12 s.; G. W. Brown (48·6-h.p. Mercedes), 140 × 150 mm., 9,237 cc., 1 m.; R. B. Whitehead (35·7-h.p. Berliet), 120 × 140 mm., 6,334 cc., 1 m. 42 s.; L. G. Hornsted (59·6-h.p. Benz), 150 × 200 mm., 15,095 cc., scratch; M. Campbell (59·6-h.p. Darracq), 155 × 140 mm., 10,567 cc., 36 s.; J. H. P. Chalmers (35·7-h.p. Mercedes), 120 × 150 mm., 6,786 cc., 1 m. 48 s.; A. Boillot (15·1-h.p. Peugeot), 78 × 156 mm., 2,982 cc., 1 m. 36 s.

This was the finest race of the day. "Pearley III" run in great style, and a capital struggle ensued between the two Mercedes of Resta and Brown and the 15·9-h.p. Singer "Bunny," who came in fourth. It was a magnificent fight for second place, and the four cars came down the straight close upon each other's heels. Winner's speed 80¼ m.p.h.

The Seventh 70 m.p.h. Short Handicap. 3 miles.

The entrant of the winner to receive a cup, value £25; the entrant of the second a cup, value £12 10s.; and the entrant of the third a cup, value £5.

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The start at Brooklands for the July Sprint Handicap.

Place.	Driver and Car.	Cylinder. Bore and Stroke. mm.	Capacity. cc.	Start. m. s.
1.	F. Burgess (12-h.p. Calthorpe) ...	60½ × 125	1,896	0 14
2.	S. J. B. Lacon (15·9-h.p. Gregoire)	80 × 149	2,996	scratch
3.	W. G. Tuck (11·9-h.p. Humber) ...	69 × 130	1,944	0 17

Also ran: S. G. Cummings (13·9-h.p. Crespelle), 75 × 150 mm., 2,651 cc., 21 s.; Lord Exmouth (15·9-h.p. Hispano-Suiza), 80 × 180 mm., 3,619 cc., scratch; L. T. R. Ridley (19·2-h.p. Adams), 80 × 120 mm., 2,413 cc., 21 s.; W. Turner Smith (13·9-h.p. Stoewer), 75 × 88 mm., 1,555 cc., 25 s.; C. A. G. O'Malley (11·5-h.p. M.A.F.), 68 × 90 mm., 1,307 cc., 1 m. 2 s.; Neville Hardy (17·9-h.p. Vauxhall), 85 × 102 mm., 2,315 cc., 16 s.; O. D. Pollak (15·9-h.p. S.C.A.R.), 80 × 140 mm., 2,815 cc., scratch; McL. N. Staight (15·9-h.p. S.C.A.R.), 80 × 120 mm., 2,413 cc., 21 s.; A. H. Borton (19·2-h.p. Adams), 88 × 120 mm., 2,920 cc., 17 s.; E. Thomas (13·9-h.p. Jackson), 75 × 150 mm., 2,651 cc., 21 s.

Burgess got the Calthorpe going fine, and quickly overtook the field, leading at the finish by nearly ¼ of a mile. Two lengths only between second and third. Winner's speed 63¾ m.p.h.

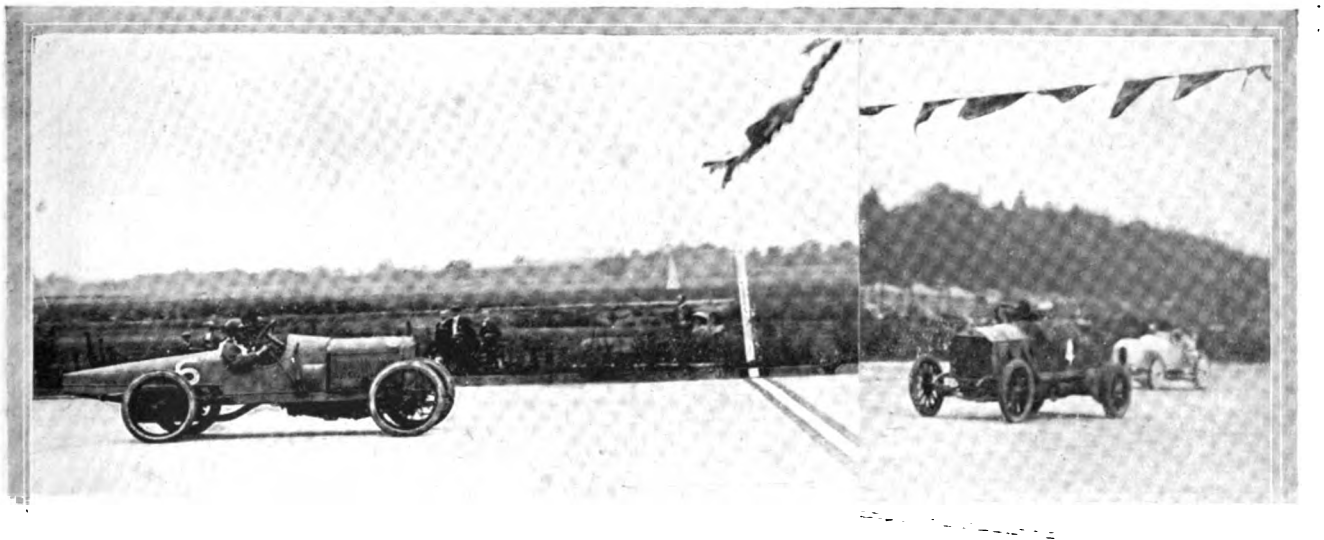
The July Sprint Handicap. 2 miles.

The entrant of the winner to receive a cup, value £25, and the entrant of the second to receive a cup, value £15.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	Eric Horniman (15·9-h.p. Gregoire)	80 × 149	2,996	0 38
2.	D. Resta (41·9-h.p. Mercedes) ...	130 × 180	9,557	0 15
3.	G. W. Brown (48·6-h.p. Mercedes)	140 × 150	9,237	0 15

Also ran: L. G. Hornsted (59·6-h.p. Benz), 155 × 200 mm., 15,095 cc., scratch; P. E. Lambert (19·2-h.p. Austin), 88 × 115 mm., 2,798 cc., 23 s.; O. D. Pollak (15·9-h.p. S.C.A.R.), 80 × 140 mm., 2,815 cc., 38 s.

The Gregoire established a good lead, and was never caught, but only a length and a half behind him Resta and Brown, on their Mercedes, crossed the line only a few inches apart. Hornsted, on the Benz, was fourth. Winner's speed 61½ m.p.h.



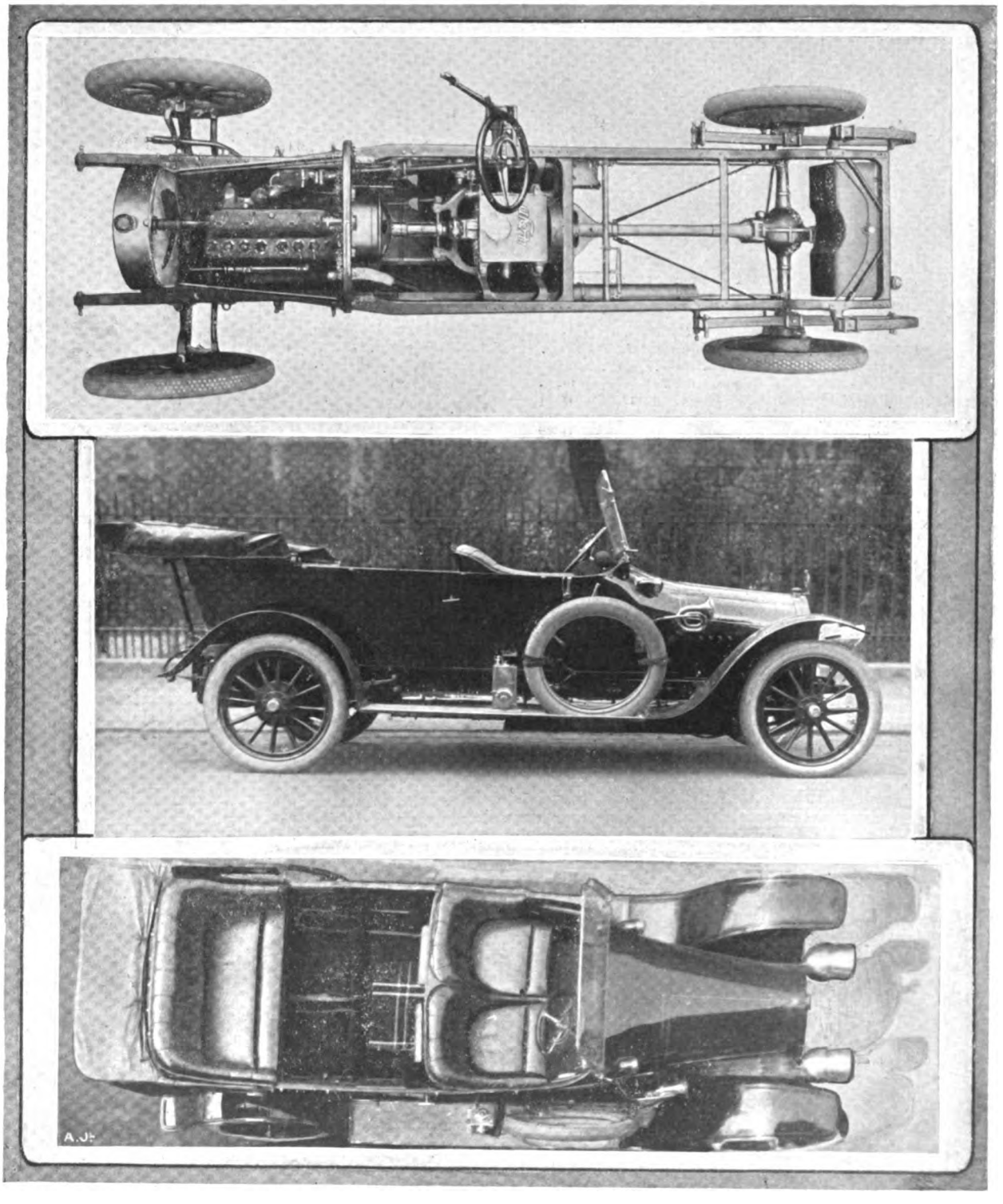
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Lord Exmouth, on his 15·9-h.p. Hispano-Suiza, winning the July Private Competitors' Handicap at Brooklands on Saturday. Lord Exmouth secured the win by two lengths. In the right-hand photograph a tussle for second place between D. Resta, on Mr. W. Dewis's 41·9-h.p. Mercedes (No. 4), and G. W. Brown, on Mr. Gordon Watney's 48·6-h.p. Mercedes in the Seventh 100 m.p.h. Short Handicap.

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LLOYD CARS.

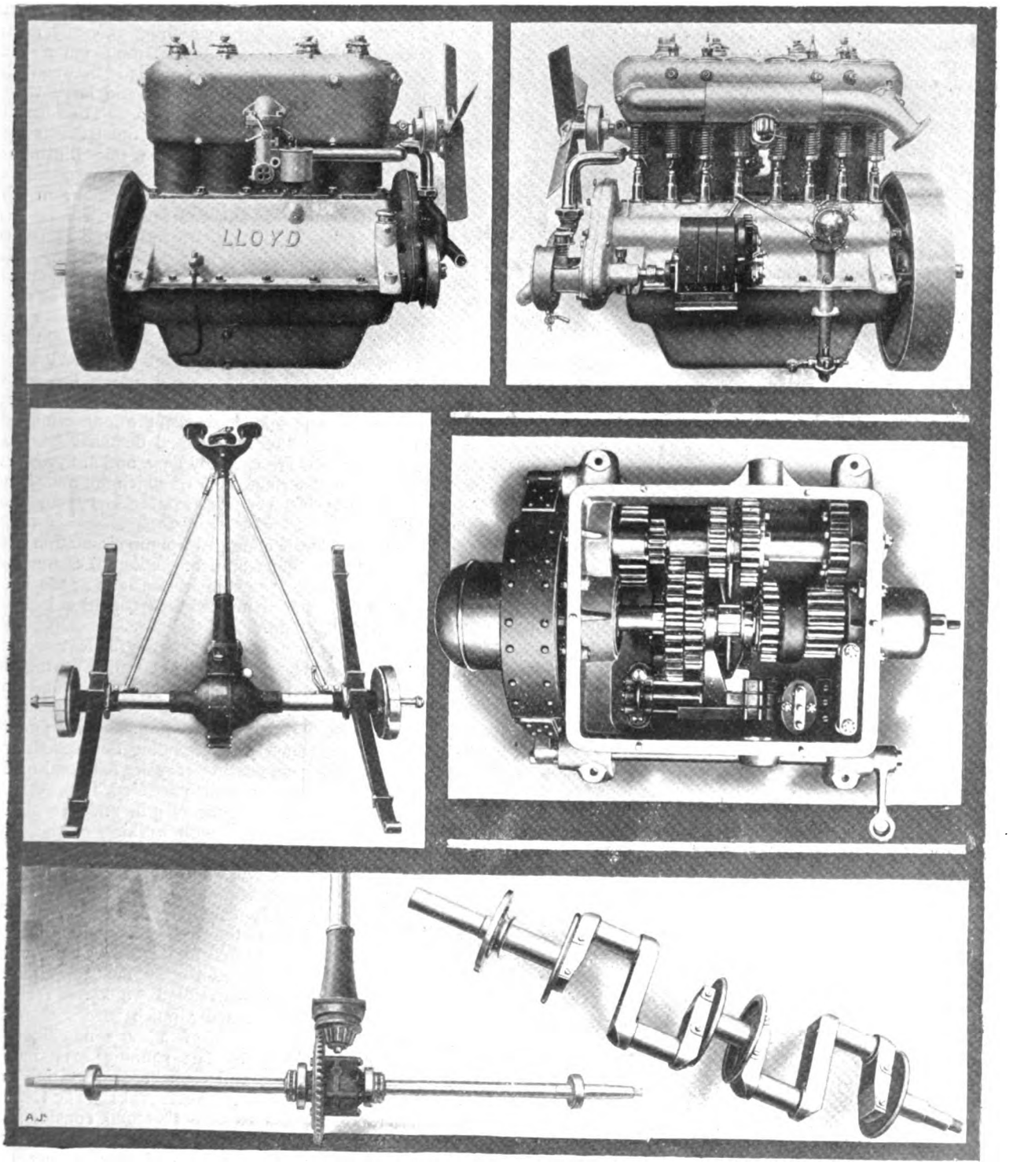
However much or little truth there may be in the oft repeated statement that this country forms the chief dumping ground for the more or less shoddy goods of other countries generally, and of Germany in particular, there is very little if any doubt that the British motor industry at home has no reason to complain of unfair or even undue competition from Germany. Indeed, when we consider the enormous number of foreign motor manufacturers who are either directly or indirectly represented in this country, we find, to our surprise, that the



5·9-H.P. LLOYD CAR.—Plan view of chassis and complete car, seen from the off side and from above, showing the clean outline and roomy interior.

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representatives of the German motor industry can be counted comfortably on the fingers of two hands. It is here neither the time nor the place to enlarge upon the reasons why this should be so, but it is certainly not for the lack of quality in German cars. Generally speaking, the outstanding feature of German built cars is their long life, which is the result of the great care German manufacturers take in the selection of their raw materials. Under these circumstances it is an event of some importance when a German firm, as yet unrepresented in England, make a serious attempt to introduce their cars to the British motoring public, as is the case just now with the British and Continental Motor Company, Ltd., who have opened offices at 199, Piccadilly, W., for the purpose of building up a market for Lloyd cars in Great Britain.



A few details of the 15·9-h.p. Lloyd chassis, showing engine, gear-box, rear-axle, and ball-bearing crank-shaft.

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At first it seems somewhat unusual to hear of a product of the Fatherland as sailing under what may appear an English—or, at least, a British—name, but the Norddeutsche Automobil and Motorenwerke, of Bremen-Hasted, who are the manufacturers, are a subsidiary company to that well-known shipping concern, the North German Lloyd, of Bremen, a fact which sufficiently accounts for the name of the cars.



Front view of the 15·9-h.p. Lloyd car.

For the present year three models are marketed; they are all equipped with 4-cyl. engines, 4-speed gear-boxes, and bevel-driven live-axles; they differ from one another in the power of their motors and in size only. The smallest of these three models, rated by the makers as 10–25-h.p., is fitted with an engine of 80 mm. bore by 130 mm. stroke, and thus comes into the very popular and useful 15·9-h.p. (R.A.C. rating) class.

A short time ago, following an invitation of the English agents, we availed ourselves of an opportunity of inspecting and testing one of these models, which we found equipped with a remarkably spacious and comfortable side-entrance body. We took the car over a circuit of roads that, although entirely inside the metropolitan area, is likely to bring out most of the good and bad qualities of a car. In the traffic of Piccadilly we were not long in finding out that the engine showed itself both docile and quick to respond to the throttle in a manner that inspired confidence, particularly so as it was accompanied by an equal sensitiveness to the manipulations of the ignition-lever. A particularly good feature at high speeds —*i.e.*, at a speed of about 40 m.p.h.—is the complete absence of engine vibration, and it is only when the motor is "pushed" to exceed this speed considerably that a slight vibration is noticeable.

We met the Brighton road at Streatham, but left it again soon afterwards at the Common, where we took the car up North Side, down Crown Hill, and up the long and varying gradients of Central Hill, which finally leads up to the Crystal Palace, opposite the South Tower. The car behaved splendidly throughout, and especially was the clutch noticeably smooth in action either when starting from rest or picking up after gear-changing. The four-speed gear-box, for which we have always had a warm corner in our heart, proved itself most useful, and once again confirmed our often-pronounced opinion on this much-debated point.

Cintra Park is a test hill near the Crystal Palace that is little known, but uncommonly useful for trying a car, but the Lloyd with its four occupants made light work of it; indeed, it showed such a reserve of power that we purposely stopped on the steepest part and re-started without the slightest difficulty.

At the top of Belvedere Road we took the opportunity of feeling the radiator, but it was only just comfortably warm, after a somewhat arduous half-hour's work; so with this preliminary investigation of the car's capability, we removed bonnet and floor boards, with a view to inspecting the machinery. Thus was revealed a strongly-built chassis, designed on what are known as standard lines. The engine is a simple and straightforward monobloc, and is fixed to the frame in such a position that everything is easily accessible. Ample water space is provided between the cylinders, and large valves are fitted. The accessibility of the latter is well shown in our illustration depicting the near side of the engine. From the same photo it will be seen that the engine is cooled by pump circulation. The pump, which runs at engine speed, maintains a rapid flow of water through the jacket, a fact that together with the action of a fan also running at high speed accounts for the remarkable efficiency of the cooling system. Perhaps the most noteworthy feature of the engine is the crank-shaft, which, although running on ball bearings, is a one-piece forging. The big-end bearings of the connecting rods are provided with white metal lined detachable bronze bushes. The pistons are specially long, and are provided with no less than five rings, four of which are above and one below the gudgeon pin, which latter is secured at both ends.

Engine lubrication is effected by pump circulation with a pressure gauge at the dashboard. A Zenith carburettor fed with petrol under pressure from a tank at the back supplies the explosive mixture, while the ignition is by a Bosch Dual H. T. Magneto.

We have always been friendly towards the leather cone clutch, and the member that we had admired during the trial trip turned out to be of this type. A sound and workmanlike engineering job is the gear-box, which is bolted to a cradle formed by two pressed steel girders. In addition to the actual gears providing four speeds and a reverse, all the gear actuating rods are enclosed in the box. They are thereby well protected from getting jammed owing to the presence of grit, and are always well lubricated, so that a smooth working of the gear-changing apparatus is assured.

We think it is well worth while separately to illustrate the propeller-shaft and rear-axle, and a glance at the picture will immediately convince the reader of the strength and rigidity of the transmission behind the gear-box. The design is typically German, which in this connection should be taken as a compliment of no mean order. From personal observation we know that the German motorist drives his car much harder than the Britisher, and no other part of a car's machinery is punished more severely by fast running over bumpy roads than the rear-axle and propeller-shaft, which have to suffer the impacts of all the road shocks. The German designer, therefore, has to take this into consideration when designing the unsprung parts of his transmission. Hence the strong cardan-shaft casing that serves as torque rod, and the two tension rods leading from the

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axle-sleeves to the forward end of the torque-tube, thus lending the whole structure additional rigidity without adding undue weight.

Ball bearings and thrust-washers are liberally used throughout the chassis. The suspension consists of three-quarter elliptic springs behind and half elliptic in front, and, as we had opportunity to find out on our run over Chelsea Embankment on the return journey, the comfort thereby secured is quite a feature of the car.

Artillery wheels shod with 815 by 105 mm. tyres are fitted as standard, but detachable wire wheels can be supplied instead for a slight increase in price.

There is just one point that might well be copied by other makers in this and other countries, and that is liberality in the outfit of spares and tools supplied free with every car. With much satisfaction we noted that the list of spares, besides the usual quantity of nuts, bolts and washers, includes a spare float and a jet, a fan-belt, two valves complete with spring collars and cotters, while in an already ample tool-kit we found a spare petrol-tin, a spare oil-tin, a wood-rasp, two wheel-drawers, hand-vice and a three-square scraper. It can safely be surmised that manufacturers who go to the trouble of studying the comfort and convenience of their clients to the extent of providing them with spare tins for petrol and oil leave little, if anything, to chance in the design and construction of their cars generally. Also, it appears to us that a car so handy and well-behaved as the one we tried, supplied by a firm that studies the interests of their clients to the smallest detail, will prove a good investment for every motorist who looks for a car of quality that represents good value for money, and that will still serve him when he has ceased any longer to think about the price he originally paid.

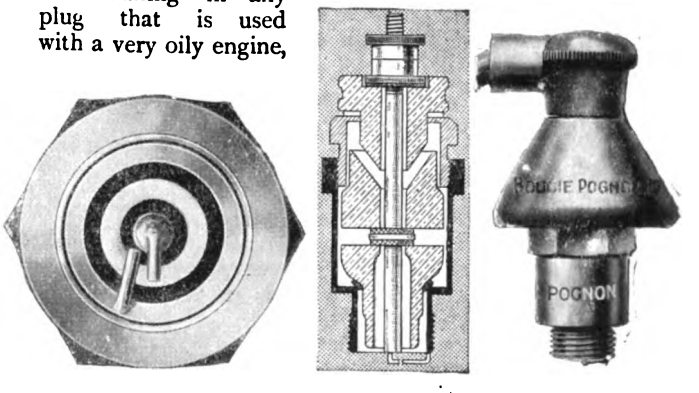


THE NEW HOBSON-POGNON PLUG.

ALTHOUGH we have frequently illustrated and described the Hobson-Pognon plug, this is the first time that we have given views like those that accompany this note showing the principal features of the C model, which according to the firm that sells them, has proved itself to be the most popular type for this year. The important point about this plug is that the two platinum electrodes form an overlapping spark gap, which is not quite parallel throughout its length. Ordinarily, of course, the electrodes of an ignition plug face one another fair and square, end to end, and as the metal burns away in action so does the gap grow wider. In this model C of the Hobson-Pognon, the platinum electrodes are unusually long, and, as has been said, they overlap for quite an appreciable distance. The spark thus starts across the narrowest gap, and as the magneto runs faster, so does the spark tend to spread out into a large hot flame, which not only assists in the rapid ignition of the charge, but also serves to maintain the spark points in their good condition throughout a much longer life. It is, in a word, a simple and effective manner of combining the straightforward construction of the ordinary single wire electrode—than which nothing has proved better in practice—with the virtues that have been associated with multi-point plugs and others of their kind.

Pure nickel can be used instead of platinum for the electrodes if required. Of the other features of the plug our readers are already familiar with that which we consider to be the most important of all—namely, its self cleaning properties, which are derived from the thin tube of porcelain encircling the central electrode near its extremity.

This porcelain is purposely made thin so that it may get very hot and the object of overheating it in this way is that it may automatically burn off any oily deposit that settles thereon. Further in, down the neck of the plug, it is impossible altogether to prevent oil from accumulating in any plug that is used with a very oily engine, but with the Hobson-Pognon one can always be sure of an insulated region at the tip of the porcelain tube, and it is this feature that makes the Hobson-Pognon plug so valuable to motorists. Of the mere constructive details it is unnecessary to say anything in particular other than that the plug is made with the greatest possible care and the best materials for the purpose.



HOBSON-POGNON PLUG.—End view of model C on the left, showing the overlapping electrodes; in the centre sectional drawing, showing the interior construction; and on the right, view of the plug fitted with protecting cowl.

"F.A.B." *née* Vivinus.

BY way of marking the opening of their new works, the Vivinus firm of Brussels has decided to rename the firm the Fabrique Automobile Belge, while their latest production will be known as the F.A.B. car. Mr. Horace M. Bowden, the sole concessionaire for Vivinus cars in Great Britain, Ireland, and the Colonies, has now secured larger offices at 15 and 16, New Bond Street, London, W., and also the Clifton Hill Garage and works at Maida Vale. His new telephone number is Mayfair 6015, and telegraphic address "Fabowmo, London."

Progressive Westminster.

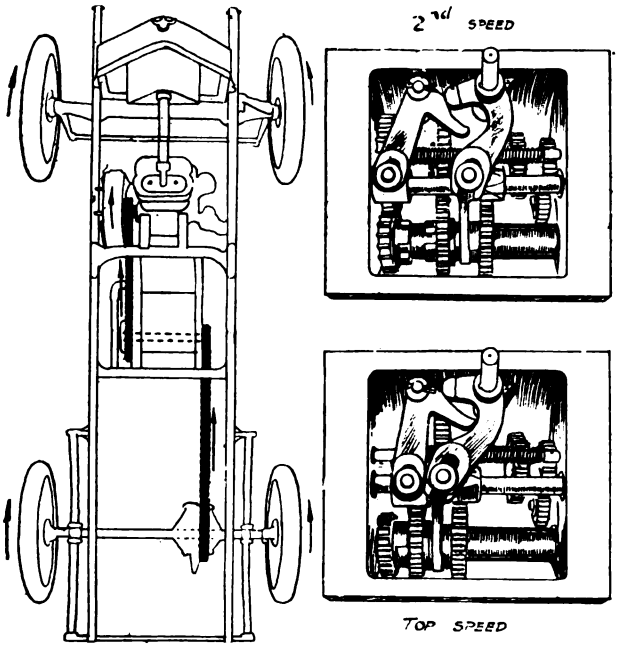
AT the last meeting of the General Committee of the Commercial Motor Users Association, Mr. Lyon Thomson reported that the Westminster City Council had recently formed a special Traffic Committee to consider *inter alia* the question of the selection of traffic routes, the erection of direction plates and notices, the loading and unloading of vehicles, &c. It had been decided to station a number of Traffic Inspectors in the busiest centres of London to report to the Council on the matter.

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POINTS FOR THE BUYER.

SILENT running, a very high all-round efficiency and consequently low running costs have for some years been the points that were of particular interest to the purchaser of 10–12-h.p. Phœnix cars. It is, of course, impossible to actually reproduce these points by pen and ink drawings, but in the three sketches published herewith we endeavour to show by what ways and means the manufacturers of these handy little cars have obtained such remarkably good results.

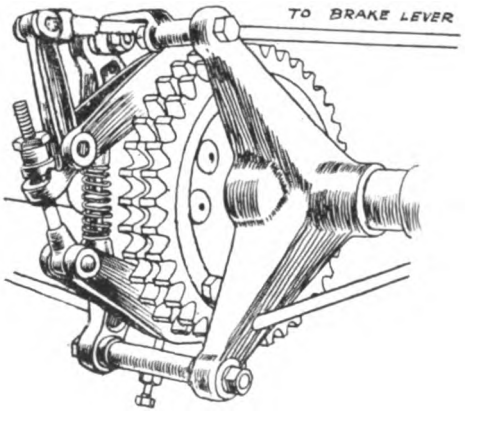
The all-round efficiency of the car is due to a great extent to the peculiar arrangement of the engine and gear-box in the chassis, and by employing silent chains



of very high efficiency for the transmission of power from the engine to the gear-box as well as from the latter to the rear axle. A single chain of the self-pitching variety is used in both instances. It is a well-known fact that one cannot take power round a corner, to use an untechnical expression, without losing a larger or smaller proportion of it. In most motor cars, however, the power has to be taken round a corner, because the road wheels do not revolve in the same direction as the engine but in a plane that stands at an angle of 90° to the plane of the fly-wheel, the change of direction being effected by employing either a bevel or worm gearing in the rear axle. In placing their engine and gear-box across the frame, so that their shafts revolve in the same direction as the road wheels, the makers of the Phœnix car have been successful in eliminating most of the loss of power occasioned in the ordinary cars by the friction set up in the final drive. The use of silent chains in the transmission of power has the additional advantage of considerable flexibility, so that neither shocks from the road wheel are likely to reach the engine nor *vice versa*. In our first sketch the direction of all the revolving parts in the Phœnix chassis has been indicated by arrows, and it will be seen therefrom that they all revolve in the same direction.

This, however, is not the only source of efficiency of the Phœnix, and in the two adjoining sketches we show another point that is responsible chiefly for the silent running of these cars. The gear-box, as can be gathered from the upper of the two small sketches, provides three speeds forward and a reverse, and in this sketch the second speed is shown in mesh. The upright pin through which the movements of the change speed lever are communicated to the fork actuating the sliding part of the gears, is provided with a cam-shaped projection that bears upon the specially shaped smaller part of an adjoining bell-crank-lever in such a way, that, while the speed lever is in any other notch than top speed, this bell-crank is held in such a position that the driven gear wheel of the countershaft is in mesh with the driving gear wheel of the main shaft. As soon, however, as the speed lever is put in to the top gear notch and the dog-clutch of the direct drive is engaged, the cam-shaped projection slides off the bell-crank-lever, which thereby is free and gives way to the pressure of a spring that pulls it towards the gear fork just far enough to disengage the gear wheel driving the countershaft. This position is shown in the lower sketch. The result of this apparently very complicated, but really quite simple and ingenious arrangement is, that whenever the top gear is engaged, the countershaft remains stationary; it can, therefore, neither make a noise nor does it absorb any power, however small this may be.

That the convenience of the driver, who in the case of Phœnix cars almost invariably is the owner, has not been overlooked by the makers is shown in our third sketch, which gives a good idea of the accessibility and convenience of the adjustment of the hand-brake. It should be noted that the foot-brake, which acts on a drum at the driving end of the main gear shaft, is provided with a similar adjustment. The arrangement is so simple that it needs no further explanation, but in connection with the hand-brake it should be remembered that no drums are attached to the rear wheels in the usual manner. Instead, one drum is fitted to the outer shell of the differential-casing next to the large sprocket wheel, and



external contracting shoes are brought to bear on this drum in a manner that is evident from our illustration.

Phœnix cars are produced in new and up-to-date works at the garden city of Letchworth, and their London showrooms are situated at 114, Great Portland Street, W.

A few words may well be said in praise of the clutch. It is of the single-plate metal-to-metal type, and owing to its enormous surface (227 sq. ins.) is not only very smooth in action but also of great durability. Wear can be taken up by an adjustment situated outside the casing.

"N. S. C. 16."

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By VICTOR HART.

The Cycle Car.

THE interesting letter from Mr. A. E. Parnacott in last week's issue enunciates opinions with which I am mainly in agreement. But there are several features he favours —some of these already adopted by cycle car makers— that are not confirmed by past motor engineering experience and which appear to be merely experiments for reducing cost of the complete vehicles without corresponding advantages to purchasers.

Every self-respecting journalist who writes for the technical press is chary of booming alleged novelties, and must always bear in mind that purchasers are, to a small extent, guided in their selection of machines by the general concensus of considered opinions of the majority of writers. Similarly, manufacturers attempt to gauge possibilities for business in a special type of machine by collating journalistic views, not of one or two writers, but of the collective judgment of the whole technical press. Between purchaser and manufacturer it is the journalist's duty to attempt the thankless task of proffering unprejudiced advice when the former puts down his good money and the latter honestly endeavours to give good value for his money in some fitment or machine that can never satisfy the user or enhance the maker's reputation. The attempt to "boom" cycle cars by but one or two writers provides the object lesson I am anxious to push to its uttermost—viz., that enthusiasm for unmechanical devices outruns discretion and technical knowledge. Since the Royal Automobile Club agreed to recognise the existence of a four-wheeled motor cycle I have, from the commencement of the attempted boom, protested at every opportunity against fulsome laudation of the cycle car, until its merits are proved by the stress of competition in officially conducted tests. (Unfortunately, two distinct types of machine, the tri-car and the four-wheeler, are classed together with the generic title of cycle cars, but I prefer to keep them apart, and when I write of cycle cars at any time in future, that word will only concern the four-wheeled very light car.) Plenty of opportunities have been afforded for obtaining the hall-mark of trials awards but only one make of cycle car has yet put up decent performances. The Six Days' Trials at Taunton in August will allow the public to judge whether the claims put forward for some of these machines can be justified. The entry fee is £5 5*s.*, so the excuse of expense cannot be put forward in case the programme does not disclose a good list of cycle cars.

Some Ancient History.

One of my objections to some forms of cycle cars is lack of strength to withstand the terrific strains when the whole braking power is suddenly applied, and in this connection thousands of motor cyclists appear to be unaware that the first practical cycle car was the Phœnix quad-car, built by the company now producing the Phœnix cars at Letchworth. Mr. J. Hooydonk, the designer of the quad-car, could tell some interesting tales of the many difficulties that had to be overcome and the heavy cost of experimental work before a reasonably efficient machine could be marketed. Even then, frame troubles were experienced through employment of the powerful brakes. Strengthening the frame was the only remedy, and this added so much weight that I believe this consideration induced the makers of the Phœnix quad-car to drop the type.

A most unsatisfactory item of the modern bicycle is the direct transmission from engine shaft to rear wheel by a belt, and those makers of cycle cars who are imitating this method are setting themselves a handicap that no quantity of paper argument will overcome. There might be some hope for a double step in the transmission (like the successful Douglas motor bicycle), *i.e.*, chain from engine to countershaft and final drive by belt, this system permitting the use of a much larger driving pully than without the countershaft reduction. Which brings us to the problem of whether a differential is required, particularly when ascending a mile-long hill, surfaced with greasy oolite, that is soddened with a 24 hours' downfall of rain. Non-elastic transmission would want some beating under these circumstances.

Mr. Parnacott's maximum price of £100 is about right, and to give permanent satisfaction the specification ought to work out somewhat as follows. Twin "V" engine, cylinders at 90 degrees angle, under 1,000 cc. capacity, air cooled with fans, leather clutch, three speed and reverse gear-box, chain transmission throughout, 760 by 85 tyres, pedal and side lever brakes, connections from steering column to front wheels by rods or heavy gauge tubing. There are still to be reckoned cost of pair of acetylene lamps, tail lamp, horn, tyre jack, hood, and wind screen before the vehicle is complete, and if these are added to the £100, the total approximates closely to the price of a few British and American cars, and annual running costs at two-pence per mile? Perhaps.

Worth Imitating.

From the captain of the North West London M.C.C. I have recently received an admirably conceived printed circular of three pages. This Club has its headquarters at Hampstead and is strictly confined to amateur owners. The circular tabulates the remaining events of the 1912 season, not by a bald statement of "reliability trial" or "hill-climb," but fully describes the special features of all the functions, gives information how the venues can be reached, and, further, sets down a mass of most interesting details. Honorary secretaries of clubs who find difficulty in securing a good attendance of members at those events which do not appeal to pot-hunters might do worse than imitate the N.W. London, by issuing chatty circulars at fairly frequent intervals. A reminder that social events are fostered helps to maintain belief that the organisation to which a man subscribes is the right club.

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Notes from New York

THE proposal to provide New York with a motor track appears to be taking shape, as it is announced that during July work will be commenced, and the track is promised for use in a year's time. There is likely to be keen rivalry between this track and that at Indianapolis, and E. R. Pardington and Fred J. Wagner, both well-known names in connection with motor racing, and directors of this new venture, announce that on July 4th, 1913, there will be a 500-mile race at Metropolitan Speedway, as the new track is to be called.

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The New York City engineers are evidently going to do something in the way of scientific road building. With a view to finding out which type of road is most suited to New York conditions, a series of stretches of road embracing nine different systems of construction has been laid down along Second Avenue in the Borough of Manhattan. The systems comprise wood blocks, sheet asphalt, asphalt blocks, and sandstone pavement on concrete, &c.

• • •

From Detroit it is authoritatively reported that Mr. Henry Ford has stated that his firm will turn out 250,000 cars during the coming year. A rumour that the Company intended to put a 6-cylinder car on the market has been denied. The idea seems to have got about from the fact that Edsel Ford, a son of Mr. Henry Ford, had a 6-cylinder car built up for his own private use out of stock parts.

• • •

It has been suggested that useful work might be accomplished by the Society of Automobile Engineers in inducing the various licensing authorities of the States to adopt a uniform size for their number-plates. Inquiries show that at present there are more than thirty different sizes between the smallest, 4 by 10 ins., used in West Virginia and the largest, $8\frac{1}{4}$ by $12\frac{1}{4}$ ins., as required in New Jersey. A standard size would enable the motor car builder to arrange a suitable place for the attachment of the plate.

• • •

Owing to congestion of traffic in Sutter Street, which runs between the city of San Francisco and the western addition where many business men live, the local automobile club has petitioned the municipal authorities to repair the parallel street—Post Street—and allow it to be used exclusively by motor cars, at any rate, during the rush hours.

• • •

With a view to encouraging New York policemen on point duty to take an interest in their work, the New York Motor Truck Club has decided to present annually a gold medal to the policeman who, in the course of the year, proves to be most efficient in the handling of traffic. A committee has been appointed to draw up the rules, and the medal will be presented at the annual police inspection.

• • •

The dates for the Grand Prize and Vanderbilt Cups have now been settled. The Grand Prize Race is to be held on Tuesday, September 17th, and the Vanderbilt on Saturday, September 21st, while the races for the Pabst and Wisconsin Trophies will be run on Friday, September 20th.

• • •

A thoroughly well-organised parade of commercial vehicles was held at Philadelphia on June 20th. Included in the parade were some 509 vehicles representing 71 different makes and divided into five classes according to their load capacity. Included in the procession, which gradually wound its way through all the business streets of the Quaker city, were several novel vehicles, including one of the telegraph pole planting machines referred to in these notes recently, a combination hearse and funeral carriage, a truck carrying a horse, and another one a motor car chassis. At the conclusion of the parade, the majority of the vehicles were lined up in Belmont Park, where they were inspected by a large number of business people.

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It is stated that many of the people who are going to Texas have among their goods and chattels a motor car, and the Texas State Railroad Commission has recently issued an order which provides that second-hand motor cars may be included at ordinary rates in shipments of emigrant movable or household goods, provided they will load through the side doors of the railroad cars.

• • •

In the Indianapolis Courts recently, a motor firm sued a politician for the hire of a motor car for electioneering purposes, and the judge gave judgment at the rate of $4 an hour. The case was taken to the Appeal Court, where the judge said that $3 an hour was sufficient, and entered judgment at that rate. It may be noted that there is no regulations in Indianapolis regarding taxicab fares or motor car hire rates.

• • •

The police of Milwaukee have received orders from their chief to see that pedestrians in the busy section only cross the street at the regular cross walks. The vehicular traffic is controlled upon a modern system which is working very well, although the erratic movements of some foot passengers have upset things occasionally.

• • •

Motor cars are so common in Toledo, and they are so much used by their owners, that loud complaints have been made by the store keepers as to the obstruction in the principal streets when the motorists are transacting business in their offices or at the stores. Toledo has a safety director, who looks after these things, and he has drawn up a set of regulations to deal with the evil, but he says that the city will eventually have to provide parking spaces for these waiting cars.

• • •

An enterprising garage firm in Wichita, Kan., has fitted up a little electric air pump on the kerb in front of its showrooms, and "free air" is offered to passing motorists who may have trouble with their tyres. They also have on the kerb a portable tank of petrol with a pump, while there are always two black attendants at hand to render assistance.

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THE STANDARD CAR RACE.

NEARLY A DEAD-HEAT BETWEEN THE SINGER AND THE GLADIATOR AT 57·49 M.P.H. FOR 100 LAPS (277 MILES). THE SINGER WINS.

Car and Driver.	Bore and Stroke.	Time h. m. s.	Speed m.p.h.
1. Singer (Haywood)	90 × 130	4 48 46⅘	57·49
2. Gladiator (Gordon Usmar) ...	80 × 110	4 48 47⅗	57·49
3. Turcat Méry (C. R. Engley) ...	90 × 130	6 18 17	43·88
Fastest Lap.			
S.C.A.R. (D. Pollak)	80 × 140	0 2 26⅕	68·22

Here, in a nutshell, is the result of the R.A.C. Standard Car Race, decided at Brooklands on Tuesday last, over 100 laps, giving a total distance of 277 miles.

It will be seen that the race ended in almost a dead-heat between Mr. Haywood's Singer and Mr. Gordon Usmar's Gladiator, while the only other car to finish, Mr. C. R. Engley's Turcat Méry was 1½ hours behind. These figures do not, however, give a really true picture of the actual race, an outstanding feature being the splendid running of the Gladiator, driven by Mr. Gordon Usmar in his masterly manner. It was the only car that had no trouble of any kind, and only once after completing his 70th lap did he call at the depôt to fill up his tanks. These remarks should, however, not be taken to detract one iota of the merit that is due to the actual winner, Mr. Haywood, who, in spite of much hard luck, succeeded in winning by barely two lengths.

Out of the 14 entrants 11 assembled at the track, the two Sunbeams and the Gregoire being absent. Three out of the remaining eleven were disqualified before the start, viz, the two Stars, which had been the favourites up till then, because they were not the ordinary touring models—although standard cars—and the Straker-Squire, because it had a higher gear than the standard model. The remaining 8, including 3 Singer cars, faced the starter.

For a long while this team, one of which ultimately proved the winner, put up a most creditable performance; but long before the end two of the trio had to retire, a broken timing-chain was in both cases given as the reason. Many and various were the troubles that befell the other competitors, especially that enthusiastic amateur, Mr. D. Pollak, who, driving the S.C.A.R., after a long series of tyre troubles—he had to change six tyres altogether—really deserved a better fate than to be forced to retire through clutch trouble in the eighty-fifth lap, when third place seemed almost certain for him. The Crespelle also had to retire on account of clutch trouble. Early in the race lubrication troubles had put the Vinot out of the running. A broken petrol-pipe delayed the Turcat Méry for a long time, but both driver and mechanic stuck to their post and finished the race third.

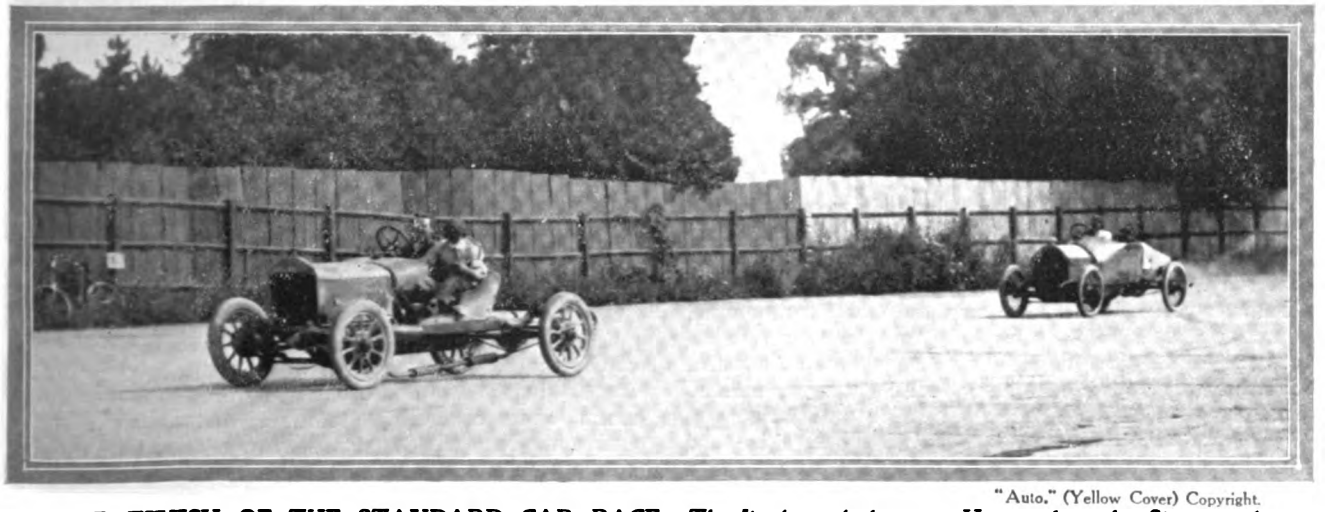
In the 88th lap the race became exciting. Haywood's Singer, the leader, was forced to stop to repair his exhaust pipe which had come adrift a third time. Gordon Usmar, on the Gladiator, then took the lead and at the end of the 90th lap was 1 min. 20⅕ secs. ahead of the Singer, which was making a great effort to catch up. Usmar entered the last lap leading by 2 secs. but was overtaken by the Singer which won by just two lengths.

Positions of the Cars during the Race.

Car and Driver.	After 1st hour. Position.	After 1st hour. Distance.	After 2nd hour. Position.	After 2nd hour. Distance.	After 3rd hour. Position.	After 3rd hour. Distance.	Time for first 100 miles.
		m. yds.		mls. yds.		mls. yds.	h. m. s.
Singer (Rollason) ...	2	59 600	4	109 513	5	129 709	1 44 1⅘
Singer (Haywood) ...	2	59 600	1	115 1432	1	172 1602	1 44 1⅘
Singer (Geach) ...	1	59 620	3	113 800	3	166 1487	1 46 1
Turcat Méry (Engley)	5	48 248	5	93 263	4	138 362	2 8 10⅕
Crespelle (Cummings)	6	14 laps		retired.			
S.C.A.R. (Pollak) ...	8	10 laps	6	49 1350	6	86 297	
Gladiator (Gordon Usmar)	4	m. yds. 56 782	2	113 1590	2	171 1571	1 45 3⅕
Vinot (Brooks) ...	7	11 laps		retired.			

The following is the complete list of entrants:—

No.	Vehicle and Entrant.	Bore mm.	Driver.
1.	Sunbeam (L. Coatalen)	90	D. Resta
2.	Sunbeam (L. Coatalen)	90	L. Coatalen
3.	Star (Star Eng. Co., Ltd.)	80	R. Lisle
4.	Star (Star Eng. Co., Ltd.)	80	C. Cathie
5.	Turcat Méry (C. R. Engley) ...	90	C. R. Engley
6.	Crespelle (S. G. Cummings) ...	75	S. G. Cummings
7.	S.C.A.R. (D. Pollak)	80	D. Pollak
8.	Straker-Squire (R. Fedden) ...	87	Clements
9.	Singer (G. Herbert)...	90	Haywood
10.	Singer (G. Herbert)...	90	Rollason
11.	Gregoire (British Gregoire) ...	90	L. McBride
12.	Gladiator (The Gladiator Co.) ...	80	G. Usmar.
14.	Vinot (Vinot Cars, Ltd.)	80	E. W. Brooks
15.	Singer (Chas. L. Geach)	80	Chas. L. Geach



"Auto." (Yellow Cover) Copyright.

THE FINISH OF THE STANDARD CAR RACE.—The final tussle between Haywood on the Singer and Gordon Usmar on the Gladiator for first place, only ⅘ seconds divided them for the 100 laps = 277 miles.

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Speed Trials at Clipstone.

By permission of the Duke of Portland, the Club's patron, the Notts A.C. were able to hold their Annual Speed Trials on the private track at Clipstone Drive, near Mansfield, on Saturday last. Four events had been arranged, while an extra turn was provided by Mr. B. C. Hucks, who paid the scene a flying visit on his 70-h.p. Blériot monoplane. All four of the events were won by Mr. R. Wilkie on his 20-h.p. Vauxhall; while Mr. G. Hubert Woods secured second place in all four events, as well as two third prizes. The gold medal for the fastest time was won by Mr. G. Hubert Woods, whose 20-h.p. Crossley did the flying kilometre at a speed of 28⅖ secs. Mr. O. Tholander was second on his 27-h.p. Austrian Daimler in 30⅘ secs. The handicapping was arranged by the R.A.C., and principal results in each class were as follows:—

Hardy Challenge Cup.—Flying kilometre handicap for tourist petrol cars (open to any member of the Notts Club).

		Time. secs.	Efficiency per cent.
1.	R. Wilkie (20-h.p. Vauxhall)	34	146·6
2.	G. Hubert Woods (15-h.p. Crossley) ...	35	136·1
3.	Henry Wing (10–12-h.p. F.N.)... ...	50⅘	120·4
4.	E. Hoyle (20-h.p. Vauxhall)	36⅘	116·9

Morrison Challenge Cup.—Flying kilometre handicap for touring petrol cars (open to members of the Notts, Lincoln, Derby and N. Stafford, and Leicester Clubs). The visitors being represented by a team of four cars to each club.

1.	R. Wilkie (20-h.p. Vauxhall)	34⅖	142·7
2.	G. Hubert Woods (15-h.p. Crossley) ...	35⅕	134·5
3.	Henry Wing (10–12-h.p. F.N.)... ...	49⅖	126·5
4.	G. Hubert Woods (20-h.p. Crossley) ...	29⅘	117·6

Open Event.—Fastest time flying kilometre for any type of car (open to any member of the Notts, Lincoln, Derby and N. Stafford, and Leicester Clubs).

1.	R. Wilkie (20-h.p. Vauxhall)	35⅖	133·6
2.	G. Hubert Woods (20-h.p. Crossley) ...	28⅘	132·1
3.	G. Hubert Woods (15-h.p. Crossley) ...	35⅕	129·4
4.	Henry Wing (10–12-h.p. F.N.)... ...	50	123·4

Wilson Challenge Cup.—One mile handicap, standing start, for touring petrol cars the property of members of the Notts Club.

1.	R. Wilkie (20-h.p. Vauxhall)	1 9⅘	87·1
2.	G. Hubert Woods (15-h.p. Crossley) ...	1 10	85·2
3.	G. Hubert Woods (20-h.p. Crossley) ...	0 59⅘	85·7
4.	E. Hoyle (20-h.p. Vauxhall)	1 9	82·9

A Severe Reliability Trial.

Seldom has a club held an event in which the competitors were set to cover such a stiff course as that chosen by the Coventry and Warwickshire Motor Club for their Reliability Trial for the Manville Trophy last Saturday. Starting from the Cross Roads on the Kenilworth Road, near Coventry, the thirty competitors, which included motor cycles and cars, had to traverse a 98-mile route, including Edge, Ilmington, Campden, Saintbury, and Birdlip Hills to Cheltenham, where a stop was made for lunch; while on the return journey of 84 miles, Sudeley, Guiting Grange, Weston-sub-Edge, and Sunrising Hills had to be negotiated. The result was a win for Mr. H. Nelson Smith on the 25-h.p. Hillman car, with W. F. Newsome, on a 3½-h.p. Triumph, second, and J. H. Pountney, on a 3½-h.p. Rover, third. The winner of the light-weight prize was Mr. Sam Wright, while the sidecar award went to J. F. Spencer on a 4½-h.p. Excelsior. Besides these, the other competitors to finish without loss of marks were Mr. E. W. Cheshire (12–14-h.p. Wolseley), W. Blatch (3½-h.p. Rudge), A. N. Barratt (3½-h.p. Rudge), P. Moss (3½-h.p. Premier), G. Smith (2¾-h.p. Humber), W. F. Wartnaby (3½-h.p. W.D.), L. A. Bees (3½-h.p. L.M.C.), H. D. Teage (5–6-h.p. Clyno), C. D. Lloyd (6-h.p. Rex), W. E. Roots (3½-h.p. Singer), C. T. Newsome (3½-h.p. Rover), E. A. Gorton (6-h.p. Rex).

Humber Records at Brooklands.

On Monday last, at Brooklands, Mr. W. G. Tuck on the 11·9 Humber car beat the Calthorpe records in Brooklands Class B. His times were: flying half mile 25·13 sec. (71·62 m.p.h.); flying kilometre 41·17 sec. (71·77 m.p.h.); and for the flying mile 50·86 sec. (70·82 m.p.h.).

An Efficiency Run.

Somewhat novel conditions governed the competition held by the Middlesex County A.C. on Saturday last over a 20-mile course starting from the top of Brockley Hill and going through Elstree and St. Albans, finishing about a mile before Hatfield. Before the start each competitor was required to declare the speed at which he would run over the whole distance, while the cars were set to ascend Woodcock Hill at an average speed of 10 m.p.h. Each competitor was credited with a thousand marks, and deductions were made for every minute variation from the declared speed, for every second variation on the hill, and for every involuntary stop. The result was a win for Mr. E. L. Vickery on a 10–12-h.p. Renault; the second prize was taken by Mr. H. W. Toler on a 25-h.p. Talbot; while the third went to Mr. H. Fitch on a 11·9 Arrol-Johnston.

Cycle Car Hour Records.

On Wednesday of last week a Bedelia cycle car succeeded in gaining the cycle car hour record at Brooklands. The first attempt was brought to a conclusion after eleven laps owing to the heat from the silencer having set fire to the floor boards. The fire was, however, easily put out and a fresh start made. After the first two or three circuits the car ran steadily at a speed in the neighbourhood of 50 m.p.h. until the last few laps, when it slowed up. The record was beaten by 388 yards, the new figure for the hour being 45 miles 278 yards. The car, which weighed 412 lbs., was driven by Mr. H. Ward.

A Motor Cycle Six Days' Record.

On Thursday evening of last week Mr. J. Guzzwell, of Cleethorpes, succeeded in beating the record for six days' riding on a motor cycle. Mounted on his Rudge machine, he covered 3,080 miles, mainly on a circuit embracing Norwich, St. Albans, Coventry and Cleethorpes, beating the record of 3,008 miles made by Mr. W. J. Clark. It is said that during the six days Mr. Guzzwell only had seven hours' sleep, but he finished the ride in splendid condition.

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A.C.U. Silencer Trials.

THE experimental silencers having been fitted to the Triumph and Rudge machines, it is proposed to hold the preliminary tests at the end of this week. As soon as the results of these tests have been got out, they will be communicated to the various manufacturers and entries received for the trial proper, which, it is expected, will be held in about six or eight weeks' time.

A.C.U. Six Days' Trial.

SATISFACTORY progress is being made with the arrangements for the Annual Six Days' Trial of the Auto Cycle Union which will this year take the form of out and home runs from Taunton as a centre. The routes will include the most severe ascents to be found in the West Country. A new system of marking which prohibits competitors being more than ten minutes in advance of or behind scheduled time at any point without loss of marks has been adopted. The trial will be held from August 12th to 17th, and there will be a tyre and belt trial in conjunction with it. The A.C.U. would be glad to receive offers of assistance from any motor cyclist or repairers who would assist in directing the competitors or undertake checking.

August Bank Holiday at Brooklands.

FOR the next meeting at Brooklands, which takes place on August Bank Holiday, it is proposed that racing should start at noon, and the suggested programme contains no less than fourteen items, not counting the usual Aeroplane Handicap. Of the ten car events proposed, six are of the type which have found such great favour during the past two seasons, and the other items include a three-litre handicap in which the prizes are £100, £25, and £10, or Cups at option; a Consolation Stakes for cars which have not won a first or second prize at Brooklands prior to August 1st; and two sprints, one for single-cylinder Zebra cars and the other for Fords. There will also be a winners' handicap, in which the winners of any cycle or car event may take part and for which there is no entry fee. The three motor cycle handicaps include one for sidecars and cycle cars, while the others are of the ordinary type. Entries close on July 24th for the car events, and on the previous day for the motor cycle races :—

Car Events.

1. **Eighth 70 m.p.h. Short Handicap.**—For cars the maximum speeds of which are about 70 miles an hour or less. Distance about 3½ miles.
2. **Seventh 70 m.p.h. Long Handicap.**—For cars the maximum speeds of which are about 70 miles an hour or less. Distance about 8½ miles.
3. **Eighth 100 m.p.h. Short Handicap.**—For cars the speeds of which are about 70 miles an hour or more. Distance about 5⅜ miles.
4. **Eighth 100 m.p.h. Long Handicap.**—For cars the speeds of which are about 70 miles an hour or more. Distance about 8½ miles.
5. **August Sprint Handicap.**—For cars which have done flying laps at about 70 miles an hour. Distance about 2 miles.
6. **August Private Competitors' Handicap.**—Distance about 5⅜ miles.
7. **The Consolation Stakes (a Handicap).**—Distance about 5¾ miles.



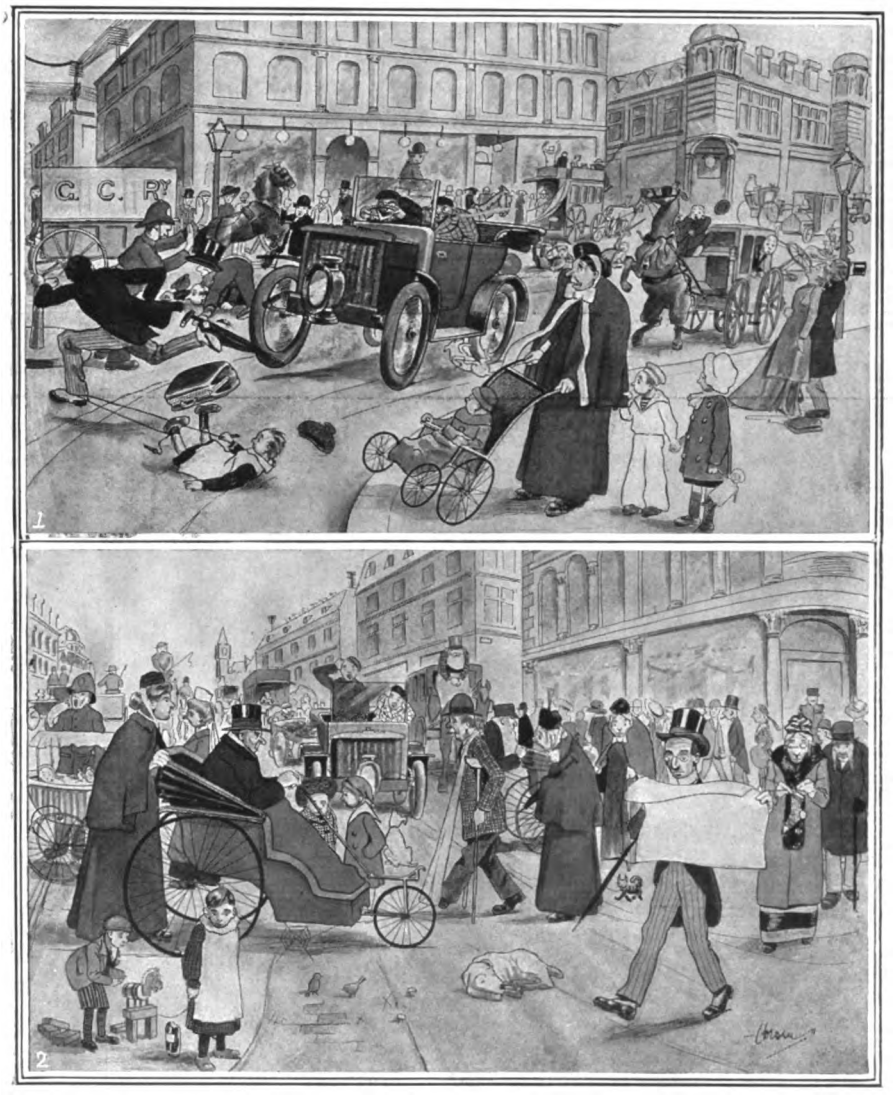
THE ROYAL VISIT TO YORKSHIRE.—Their Majesties' car passing through Dalton village on the way to Silverwood Colliery.

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8. **Zebra Car Race.**—Distance about 2 miles.
9. **Second Ford (Model T) Car Race.**—Distance about 2 miles.
10. **The Brooklands Three-Litre Handicap.** — Distance about 8½ miles.
11. **Winners' Handicap.**—For winners in car and motor cycle events. Distance about 3¼ miles.

Motor Cycle Events.

a. **Eleventh Short Motor Cycle Handicap.**—For all classes of motor bicycles. Distance about 5⅜ miles.
b. **The Ninth Long Motor Cycle Handicap.**—For all classes of motor bicycles. Distance about 8½ miles.
c. **First Side-Car and Cycle Car Handicap.**—For motor bicycles with side-cars. Engines under 1,000 cc., and for cycle cars. Distance about 5⅜ miles.



Drawn by W. Holden and published by permission of "Sketch."

1. Modern motor traffic as seen by him who crosses the streets.
2. Modern pedestrianism as seen by the motorist.

THE DANGER OF THE STREETS: TWO POINTS OF VIEW.

The discussion in the Press aroused by the latest returns of accidents in London streets caused by the increase of motor vehicles has brought into prominence the divergent points of view of the two kinds of users of the streets. To the motorist, the aggravating nonchalance of the pedestrian and the slowness of his movements are apt to give the impression that there is a perpetual desire for suicide under the wheels of what some are pleased to call the Modern Juggernaut; while, to the pedestrian, London streets seem to be an inferno of hooting and entirely reckless road-hogs, making a crossing an act fraught with the greatest peril.

The Grand Prix 1913 to be on T.T. Lines.

THE Automobile Club of France has got a little further with its Grand Prix programme for next year and has decided that (1) the fuel shall be limited in the proportion of 20 litres for each 100 kilometres; (2) the weight must be not less than 800 kilogs. nor more than 1,100 kilogs; (3) the length of the race will be about 900 kilometres. Should there be less than 40 entries received by Nov. 1st, the Club reserves the right to cancel the event, while if there are too many an eliminating race may be held. The entry fee has been fixed at 4,000 francs per car, and there is no limit as to the number of each make that may be entered. The Club are now looking for a suitable course 45 or 60 kilometres round and within easy reach of Paris.

The Czar's Cup.

IN our last issue we referred to the progress of the above competition up to the time of the arrival at Riga. There a series of speed trials over the flying kilom. were held on the 4th inst., and the winner was a Benz car, driven by Muller, which was timed for 27 secs.

The next day the cars went to Kovno, a distance of 260 kiloms. The travelling was not at all easy, and for about 90 kiloms. the cars had to plough their way through sand between 30 and 50 centimetres deep, and several cars had radiator trouble owing to the sand filling up the honeycombs, &c.

On the 6th inst. the cars journeyed on to Warsaw, and the otherwise fine run was marred by an accident, the overturning of an Itala car at a sharp turning, resulting in the driver, Alexieff, sustaining a broken arm. The car was not seriously damaged, and was able to continue. The next day speed trials were held at Warsaw, the fastest time—26⅖ secs.—being again made by Muller's Benz, while Ovsiannikoff's Vauxhall won on formula, the time being 36⅖ secs. On the 8th inst., the run was to Brest, while on the next day the stage was a long one, 420 kiloms., over a good road to Jitomir.

Unfortunately, an accident happened to the Austin car during the run from Rosslavl to Homel, the car falling over an embankment. Of the four people riding in the car, the driver, Mr. Kendel, was only slightly injured, but Mr. Bell, the Austin representative in Moscow, had a broken leg and arm, while the mechanician, Taylor, had slight injuries to his foot.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting of the Management Committee was held on Monday last. Present: Mr. A. J. Allison, presiding, Mr. A. Holmes, Deputy Chairman, Mr. J. Cates, Vice-President, Mr. H. Pye, Trustee. Committee: Messrs. Shaw, Holland No. 2, Rawson, Emmerson, Tyler, Adey, Wallis and Oliver.

The minutes of the previous meeting were read and confirmed.

Legal Department.

The solicitor's report *re* speed limit case at Richmond was submitted, also letter from the member defended, thanking the committee for the prompt manner in which they had dealt with the case, the result of the hearing being a fine of 20*s.* including costs.

The deferred question with reference to a member joining by misrepresentation was again taken. The secretary reported the result of his enquiries, and it was decided to ask the member to attend the next meeting of the committee and hear his explanation.

The secretary reported that Messrs. Wilson and Co. had written to say that the handbook was nearing completion. Design for the cover was submitted and approved of.

After the ordinary business was concluded the meeting was thrown open to the members, Mr. A. Holmes, Deputy Chairman, presiding.

Mr. P. Holland moved that the Society add to the Parliamentary programme the need for one day's rest in seven for chauffeurs. Mr. Holland said it appeared that nearly every trade had recognised the necessity for a day's rest, and he contended that the occupation of the chauffeur was one in which nerves entered largely, and it would be beneficial to have the right of one day's rest in seven. Many employers were humane in this respect and allowed their chauffeurs to have the rest day needed, but unfortunately the majority were not so thoughtful, and worked the chauffeur harder than they would dream of working a horse. It meant that the ordinary man could not go on year after year and bear the strain of this continual work. He certainly thought it was worth while trying to point the way to the employer by asking for legislation.

Mr. Rawson, in seconding the resolution, said he certainly should appreciate one day's rest in seven. It was the only grievance he felt against his employers. In every other respect they were all that could be desired. He believed that many employers would fall into line and adopt the principle.

Mr. Cates, Mr. Allen, Mr. Chappell, Mr. Adey and Mr. Wallis entered into the discussion.

Mr. Holmes said he would advise the mover and seconder of the resolution not to press for the adoption of the resolution until the President and Vice-President had been consulted in the matter, and suggested that the resolution should read: "That the President and Vice-President be interviewed and the advisability of adding to the Parliamentary campaign the need for one day's rest in seven for chauffeurs should be placed before them, with the arguments for and against, and that their decision be reported to the next meeting of the members. The suggestion was accepted by the mover and seconder of the resolution, and carried with one dissentient.

Clubroom.—The club premises are being well attended. Percy Holland No. 2 is still prowling about seeking whom he may devour after his billiard break of 92. In strict confidence, he tells me his highest break is 165. Any member who can call and give Percy a dressing-down will be received with open arms, and may be sure of a good time.

A board will be hung in the billiard room, and all record breaks will be written thereon. Several members have stated the intention of having their names inscribed, but Percy still holds the record.

Accepted for Membership.

Albert T. Coleman, Cranford.	Oliver Sargeant, Southampton.
Thomas Finson, London, S.W.	Benjamin Trigg, Abergavenny.
Percy Skerratt, Manchester.	Harold A. Griffiths, Stonehouse, Glos.
John Gilson, Birmingham.	
Frank Woods, Poynton.	Edward Curtis, London, N.W.

Two applications were held back for references.

Applications for Membership.

John E. Williams, Surbiton.	Arthur P. Hibberd, London, N.W.
Frederick W. Prett, Kildare.	Arthur Vincent, Chesterfield.

One application was referred back for further particulars.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.
Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed
Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.

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Speed Judging at Brentwood.

LAST Saturday members of the Essex County A.C. met at Shenfield Common, Brentwood, for a speed judging competition which had been arranged in place of the Gymkhana originally proposed. The competitors were first set to drive a distance of two miles at 20 m.p.h. followed by one mile at 10 m.p.h. The winner of the first section was Mr. Bodkin, and Mr. Keddie took the honours in the 10 m.p.h. event, while the prize for the best aggregate was won by Mr. Haydon Bacon.

After the Competition the cars proceeded to Thorndon Hall, where the members and their friends were entertained at tea by Lord and Lady Petre, who kindly presented the prizes to the successful competitors.

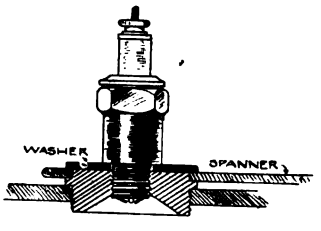
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Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

64.

REMOVING VALVE-CAPS UNDER DIFFICULTIES.—Although I do not personally know the man who before me had charge of my present car, I am convinced that he was not much of a practical engineer. It is not difficult to find out which chauffeur comes from the workshop and which from elsewhere, if you have a chance of watching them handling so simple a tool as a spanner. The man with no shop training almost invariably selects a "shifting" spanner, while the eye of the engineer quickly sizes up the hexagon, and just as quickly picks out from amongst his tools the fixed spanner to fit it. The result of always using an adjustable wrench invariably is that sooner or later the corners of the hexagon get worn and rounded off so much that they can no longer be gripped with any spanner, and have to be chiselled off or removed in some other more or less crude way. Now this was exactly the state in which I found the hexagons on the top of the valve-caps of my present car, and when the time came for the valves to be ground in, I was puzzled for quite some time how to get the caps out. Owing to the softness of the metal they were made of, it was out of the question to unscrew them by means of hammer and chisel, and as there was no room to use a file I could not file new faces on the nuts, even if the metal had been thick enough to permit it, which it was not. In the end I hit on the plan that is partly shown in the sketch, which proved a comparatively easy and simple solution of the difficulty. I first made a spanner of some thin steel to fit the hexagons as well as possible under the circumstances, and found a good big flat washer, large enough to cover up the business end of the spanner. I next took out the sparking plug, which is screwed into the valve-caps in the centre of the hexagon, put the spanner over the nut, placed the washer on top of it, and took an old sparking-plug which I screwed tight into the cap. This proved to safely lock the spanner, and I could unscrew the caps without much trouble. Once they were out I could trim up some of the hexagons with a file so that I was able to screw them in afterwards by using an ordinary spanner one size smaller than the original.—*S. Made.*



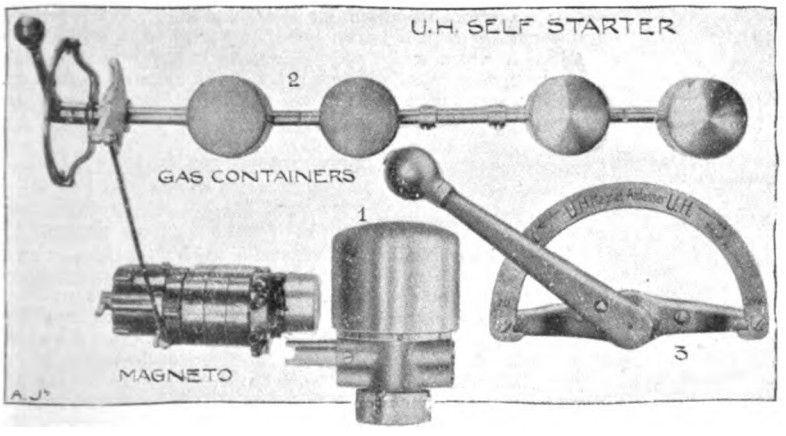
65.

PECULIAR SQUEAK.—Have you ever traced a squeaking noise on the first try? I never have. There is nothing more elusive, and few things more annoying, on a motor car than a squeak. The more you hunt for it the louder it seems to get, and often you seem to be further from finding it than you were at the beginning of your search. One time it seems to come from the springs; the next day it sounds as if something in the transmission were making the noise; and yet, on another occasion, you are almost sure it is in the engine! Of course, we all know that the number of possible sources of a squeak is only limited by the number of single parts a motor car consists of; and they run into many thousands. In my time I have hunted and traced a good many squeaks, and found them in all sorts of odd places. Once I found one that was caused by the petrol tank rubbing against a wooden block of the bodywork, and making a most horrible row, which was all the more difficult to find because it would disappear completely for a week or so and then start afresh. The following, however, I believe to be about the most peculiar squeak I ever found, and as usual it took me some considerable time to find it. I soon could tell that it came from the forward end of the chassis, and after some eliminating I concluded that it must come from the engine. The peculiarity in this case, was, however, that the noise only appeared when the engine was actually pulling, and never when it was running idle, however slow or fast it ran without load. This, of course, made the noise all the more difficult to trace. Nevertheless, I was convinced that it came from the engine, and after listening carefully I came to the conclusion that it must be somewhere in the neighbourhood of the valve-stems. But the valves have been in there for years, have never been rebushed or altered in any way, so I could not understand why all of a sudden they should start squeaking. I applied the oil can liberally wherever possible, but it made no difference, the engine would squeak when pulling, but would run dead quiet when idle. Well, out came the valves, they were closely scrutinised, and everything was as it should be, but when I came to look at the springs carefully I found that two of them had peculiar looking bright marks on the inside, which looked very much as if the springs had been rubbing against something, and so it turned out to be. The bottom end of these springs is tapered to a point which goes through the slot in the valve-stem, thus holding the valve and spring in position without the usual collar and cotter. This tapered end for one reason or another had gone too far through the slot, so that the spring, instead of being parallel with the valve-stem, was bent and touched in a few places, which caused the squeak. After replacing the springs in a proper manner the squeak ceased, but what I should like to know is, why they squeaked only when the engine was pulling, and not when it was running idle, because there is the same amount of movement on the valves in both cases.—*N. S. C. Holmwood.*

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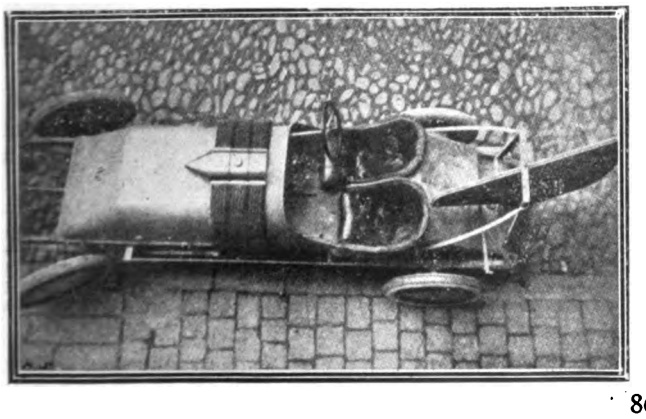
FOREIGN MISCELLANY.

A new self-starting device has been brought out by the manufacturers of the U.H. magneto. It consists of two parts, a special arrangement whereby a spark can be obtained from the magneto while the car is at rest, and a series of steel bottles in which explosive mixture is stored. The magneto is so designed that the armature can be



rotated through a certain angle independently of its driving mechanism. Each cylinder is fitted with a steel bottle, the communication with which is cut off by means of an ordinary plug-valve. All these valves being in line, they are operated by means of a handle fitted on the dashboard, which also operates the magneto impulse mechanism. In its normal (running) position the handle is horizontal towards the left (Fig. 3), and the bottles being charged the motor is started by moving the lever rapidly to the right; this first opens the valves for a short period, thereby letting fresh mixture flow into the cylinders, but further motion of the lever once more closes the valves, so that communication is cut off when the lever on reaching the end of its stroke releases the armature spring, and so causes an explosion to take place. To stop the motor, the lever is brought into the position shown in Fig. 3, in which the magneto is earthed, and the communication with the storage cylinders is re-opened. These latter are, therefore, charged with fresh mixture from the working cylinders, and before the engine stops altogether the handle is moved to its horizontal position again, which closes the valve. A locking arrangement is provided whereby unauthorised interference with the car is prevented.—*Allg. Automobil Ztng. Berlin ed.*

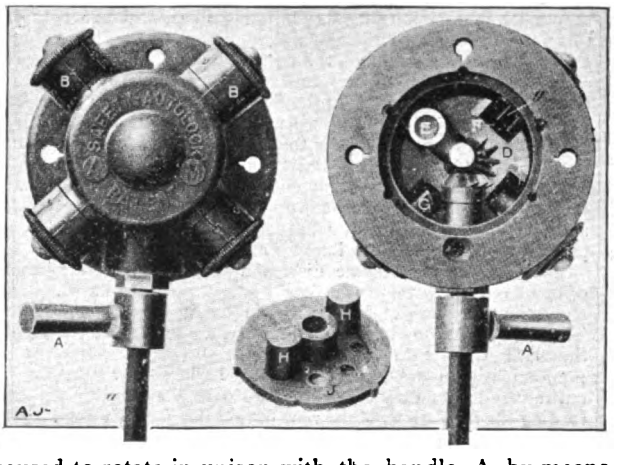
A motor car rudder.—An illustration is reproduced herewith of the application of a rudder to a racing car (Laurin and Klement). Though at first sight it would seem unlikely that this appliance would make any difference in the handling of the vehicle so fitted, yet the originator of the device, an Austrian named Haan, states that it entirely removes the tendency of the back wheels to side-slip in rounding curves at high speeds.—*Allg. Automobil Zeitung*, Vienna ed.



Demand that overwhelms engineers.—It has long been an axiom that the public must be given what it wants, and the motor car business is no exception to the rule. If a manufacturer insists upon building something the public does not want, he is reasonably sure to join the ranks of the commercially unsuccessful, regardless of the intrinsic merits of his product. Were the public gifted with engineering discretion the situation would be different; but unfortunately it is true that prejudice or lack of knowledge, or both, sometimes cause the suppression of designs which, though actually of no little merit, require such development as is impossible without the active co-operation of those who buy.

While it is a matter of regret to engineers that the lay public, comparatively uninformed, should wield so much power, there is some consolation in the fact that a really good thing rarely can be permanently suppressed. It is probable that in time the public will become educated, if not to the point of technical proficiency, at least to an appreciation of the judgment of highly trained engineers, and that much that is now kept out of sight because it is not the fashion will be brought to light and fully developed.—*Motor World, N. Y.*

The safety autolock is intended to secure a motor car against theft or unauthorised use, without rendering it immovable. The little device, which is made to fix to the dashboard of a car, cuts off the ignition as well as the petrol. In the illustration, A is the handle by means of which the current and fuel are turned on, *a* being the prolongation of the plug of the petrol-tap, while J is the contact, and F the moving part of the switch, which is



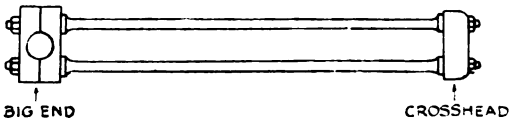
caused to rotate in unison with the handle, A, by means of the bevel-gear, D. When the right combination has been placed on the number-rollers, B, the slots, *g*, in their stems are in the same plane as the disc attached to the pinion, D, which disc is therefore enabled to rotate and so open or close the respective circuits. H and H are stops the switch-member, E, abuts against.—*Omnia.*

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CORRESPONDENCE.

Gobron-Brillie Engines.

SIR,—With reference to the paragraph on Gobron-Brillie engines in your "Foreign Miscellany" Notes of July 6th, I may perhaps be permitted to remind your readers that the outside connecting rods of the engine in question are not H section beams like the inner



ones, but consist of two parallel rods of circular section, their upper ends being bolted to the common crosshead and their lower ones to the big end. (*See* sketch).

During the recent Paris visit of the Institution of Automobile Engineers, members were afforded an opportunity of seeing this engine in operation with the upper cover removed, a somewhat novel and extremely interesting sight.

Cambridge. C. A. BRANSTON.

Drive Carefully at Redcar.

SIR,—For a considerable time complaints have been received by this Club regarding the excessive speed at which motor cars are driven through the town of Redcar. Some months ago the Council proposed to apply for powers to enforce a speed limit, but at our request they refrained from doing so on our agreeing to erect caution signs, which work has been completed. These signs do not, however, appear to have had the desired effect, as serious complaints are again being made.

We have circularised the members of the Club asking them to drive slowly through Redcar, and I am instructed to ask you to kindly give publicity to the matter, so that it may be brought to the notice of motorists visiting the District who are not members of our Club, as our Committee are anxious to do everything possible to put a stop to these complaints.

H. TOMLINSON, Hon. Sec.
Coatham, Redcar. The Cleveland Automobile Club.

H.-P. Formula.

SIR,—The matter of horse-power formula and competition ratings is a question of large importance to everybody interested in motor cars, and has been brought prominently into notice by the publication of the regulations governing the Standard Car Race.

The regulations apparently are framed with the idea of making this season's race a race for 20-h.p. cars, the horse-power formula being the out-of-date and unfair formula known as the R.A.C. formula. We were looking forward very much to the Standard Car Race, and if the regulations had been other than they are we would have entered a team of Crossley cars. We venture to think that the regulations could have been framed to make this important event very much more interesting by bringing in cars of about 15 h.p., this being the size most popular and fashionable to-day. The French race was a proof of the possibility of running a race which catered for two sizes of cars, and we do not see why it could not have been done in the case of the Standard Car Race at Brooklands. Possibly later in the season we may see another race which will admit the smaller cars—say, for the sake of example, those conforming with Class "C" of the Brooklands cubical capacity rating.

However, putting this point entirely on one side, we feel that the present time offers an excellent opportunity for thrashing out, once and for all, the question of what formula shall be used for engine classification, as far as possible, for all competitions.

Horse-power has become more and more in recent years a matter of name only, and there are some horse-power formula which make an attempt in the right direction by taking stroke into consideration. The Royal Automobile Club formula, however, under which the Standard Car Race is run, ignores stroke entirely, the only predominating figure being bore. It must be so obvious that this is entirely and absolutely unfair that we were very much surprised on reading the regulations of the race to find this formula used.

The system of classification now adopted by the Brooklands Automobile Racing Club deals with this question on proper lines, the classification being by cubical capacity, and it is up to the manufacturers to design and build their cars of such a relationship of bore to stroke as they may consider most suitable technically and commercially.

In our opinion the engine of moderate stroke gives the best all round running results in the hands of the public, and those who have followed the conspicuous success of Crossley cars in public competition this season will doubtless judge for themselves how far this policy has been justified under the stringent tests of hill-climbs and speed trials.

The Yorkshire Automobile Club have long been regarded as taking a very leading part in sporting competitions, and it is interesting to note that the classification at the recent Saltburn Speed Trials was a classification on cubical capacity, totally irrespective of bore or stroke. This lead has, we are glad to see, been followed by several other provincial Automobile Clubs in drafting their regulations for their hill-climbing contests. On the other hand by other clubs the old and obsolete system has been adhered to, and we think, if the technical committee of the Royal Automobile Club would give this matter their careful consideration and draft a classification on more modern lines, that provincial clubs would follow their lead. We should then have a system of classification which would yield results both useful to the public and instructive to the designers and manufacturers of motor cars. At present we have a number and variety of formulæ which are bewildering, but the worst of the lot is doubtless the formula of the R.A.C.

CROSSLEY MOTORS, LTD.,
per G. HUBERT WOODS.

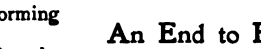
Wheel Tests.

SIR,—Although hitherto I have refrained from doing so, recent developments now lead me to join issue in your correspondence columns on the subject of Mr. J. V. Pugh's wheel tests, to which you gave publicity recently. I do so because I find myself in disagreement on many points with Mr. Pugh, who signs the article in question and was responsible for the conduct of the tests.

One small matter of fact I would wish to dismiss in the first instance—namely, that French hickory, said to be the material of one of the wheels, does not exist. I understand, however, that Mr. Pugh has since stated elsewhere that the wheel in question was American hickory. But, the salient point of my remarks relates to the evidence afforded by the photographs with which Mr. Pugh illustrated his article, and which represented the tests that were actually made. My point is simply this—namely, that all the wheels tested, wood, wire and steel, can be built capable of withstanding punishment far beyond anything they are likely to receive in use, and, being so built, are equally at the motorist's choice.

In so far as the tests conducted by Mr. Pugh have afforded actual data on what wheels will withstand in the limit of their endurance, Mr. Pugh has contributed matter of scientific interest and value, which I have no desire to discount. My object in writing is to disabuse the public mind of any scare that it may feel in using other than the wheels advertised as best by Mr. Pugh's method of analysis. I contend, and any engineer who examines the results closely will support my argument, that the tests proved the adequacy of all kinds of wheels that have been properly made, and that a motorist has every reason to be quite satisfied that he is doing the right thing if he chooses to use the "old-fashioned" artillery wood wheel at the present day. My firm happens to make wheels, as your readers are doubtless aware, and it may perhaps lend weight to my argument if I add that we make all three kinds of wheel, viz., wood, wire and all steel, which we should not do had we any reason to believe that either pattern were incapable of doing our reputation full justice.

Dudley, July 12th. G. F. GOODYEAR.



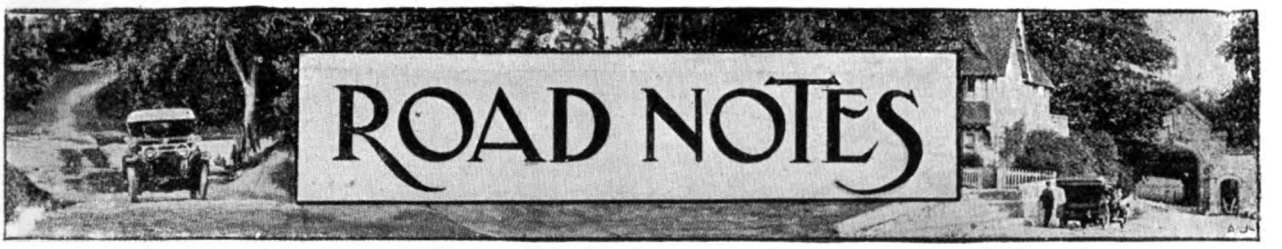
An End to End Trial.

ON Monday next a 27·3-h.p. Pathfinder car, entered by Mr. C. M. Nankivel, 16, Eastcheap, London, E.C., is to commence a top speed and petrol consumption trial over a course from London to Land's End, John o' Groat's and back to London, and including a speed test over the flying half mile on Brooklands Track.

Cars Wanted for Boy Scouts Demonstration.

IN connection with the demonstration of boy scouts which is to be held in Kent on August 3rd, 4th and 5th, a number of motor cars will be required to enable the inspecting officers to get from point to point. Motorists who will be willing to co-operate by lending their cars are asked to communicate with the Secretary of the R.A.C., Pall Mall, S.W. The idea is that the boy scouts shall watch along the coast line and the main roads of the country and pass messages from the coast to London and across country.

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COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Northwich and also through Altrincham.

GREAT NORTH ROAD.—Tarring between the 8th and 9th milestones North of Darlington full width, boards displayed. Road widening from Nevilles Cross to a ¼-mile south of same.

LANCASHIRE.—*Carnforth-Lancaster Road.*—Under repair and in dangerous condition especially at night.

Stone setts being laid half-width in Walton village 1¾ miles south of Preston, lighted at night. Special care is necessary.

Re-metalling half-width on Walton Hill one mile south of Preston. Roller at work; lighted at night; caution is advised here.

Lancaster-Keighley Road.—Members are requested to drive slowly through High and Low Bentham.

LEEDS DISTRICT.—Timing still in hand at Moortown, Leeds, through the 10 mile limits in Burley-in-Wharfdale, and Ilkley, ¼-mile west of Malton from the first milestone. A control is also being worked between Arthington and Pool on the Otley-Boston Spa road, in Chapeltown Road, Leeds (within the borough), from Reginald Terrace to St. Mary's Road.

NEWCASTLE-ON-TYNE. - *Town Moor, Newcastle.* — Measured distance between North Road Police Station and the Blue House Police Station.

EAST.

COLCHESTER ROAD.—Re-metalling through the village of Stratford St. Mary, roller working, members are advised to drive with caution.

SOUTH.

BATH ROAD.—Timing at Harlington. Members are requested to slow through Maidenhead. Control working between Twyford and Wargrave and between Wargrave and Henley.

BRIGHTON ROAD.—Members are advised to drive slowly up and down Reigate Hill as controls are likely to be worked.

KENT.—Timing at Bexley Heath, Shooter's Hill and Blackheath. Members are requested to drive slowly through Maidstone. Telegraph poles being erected at Gorse Hill.

LONDON DISTRICT.—Control on Victoria Embankment between Westminster and Tate's Art Gallery. Timing likely to be in force in and near Golder's Green, Mitcham, Morden, Sutton, Banstead, through Croydon to Purley, between Wimbledon and Ewell, between Hounslow and Staines, Kingston Hill, Putney Heath, Harlesden, Deptford, Camberwell, Maida Vale, Highgate, Holloway, High Street, Lewisham, also between Sudbury and Harrow Hill.

OXFORD ROAD.—Control working in Denham Avenue off Norman's Hill.

SOUTHAMPTON DISTRICT.—*Frimley-York Town Road.*—Control likely to be working.

Millbrook Road.—Still closed to traffic, alternative route *via* Paynes Road, Howard and Archer Roads to Avenue for London cars and *via* Waterloo Road for Southampton cars.

SURREY.—Controls likely to be working at South Godstone railway station between Kingston and Esher, on Kingston-Leatherhead road and between Ewell and Epsom.

Chertsey.—Control likely to be working in Chertsey Lane, Thorpe.

Eastbourne Road.—Timing likely to be in force in and near Kenley and Whyteleafe, also between Dorking and Westcott at Milton Heath, also in the Bridge Road, Godalming, 10-mile limit.

SUSSEX.—Controls likely to be working along Grand Parade, Eastbourne, also between Lewes and Brighton.

WEST.

Control near Torpoint, Cornwall.

MIDLANDS.

WORCESTER AND STAFFORD. — *Dudley-Stourbridge Road.* — Road being raised, also near Round Oak, will last a month.

COVENTRY ROAD.—Members are requested to slow through Redbourne, Fenny Stratford and Stony Stratford.

DERBYSHIRE.—*Derby-Loughborough Road.*—Tarring two miles north of Shardlow, half-width, and roller at work 1½ miles north of Kegworth.

Care is needed at Ashby-Nottingham cross-roads and at Cavendish Bridge.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Growing Membership of the Association.—During the past two or three weeks a very large number of motorists have joined the Association. It is confidently anticipated that by the time these notes are read the total membership will be well over 50,000. The committee desire to thank members who have kindly notified the secretary of motoring friends not carrying the Association's badge. Many new members have joined as a result of such co-operation by older members in increasing the membership of the Association.

Touring Department.—In addition to International Passes for France (including Algeria and Tunis), Germany, Belgium, Holland, Switzerland, Italy, Spain, Sweden, Austria-Hungary, Russia, and Bulgaria, such passes are now being issued by the Association for Portugal and Roumania, the latter countries having now come into the convention.

The Uxbridge Main Road.—The Association is in correspondence with the responsible authorities regarding the very bad condition of the Uxbridge main road between Shepherd's Bush and the "Askew Arms." Since this matter was taken up by the Association recently, other complaints have been sent in by members concerning damage caused to their car springs and wind screens on this road. The Association is doing everything possible to ensure this road being put in good condition as rapidly as possible.

A Surprise Toll-Gate.—Members have complained with regard to the toll-gate between Rhos and the Little Ormeshead, that there is no notice board or any other indication warning motorists using this road that a toll of one shilling must be paid. As quite a number of motorists proceed to Colwyn Bay from Llandudno by following the coastline by Rhos, this unexpected toll is a constant cause of irritation. The Association is therefore suggesting to the owners of the toll the advisability of erecting a warning board.

Excessive Toll Bridge Charges.—The Association has taken up the matter of excessive tolls levied at Queen's Ferry, on the River Dee, below Chester.

Successful Prosecution for Assault.—Whilst passing through Sheffield recently at midnight, two members bringing a car up from London, were molested by a pair of well-known Sheffield hooligans, and one of the motorists was severely assaulted. The Association, upon learning the facts, felt that it was a case in which action should be taken with a view to stopping such unwarranted assaults upon members. The chief culprit was therefore arrested. It was proved before the stipendiary magistrate that the prisoner had an exceptionally bad record, and he is now undergoing a sentence of one month's imprisonment.

Stone Throwing.—Members who have suffered from stone throwing on Derby Road, Bootle, where small children have established a practice of pitching garbage at passing cars, will be interested in knowing that the Association has obtained the promise of the Chief Constable that the matter will have the special attention of the police constables on duty at this point.

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Propellers for Motor Cars.

M. BERTRAND DE LESSEPS has now converted his Gregoire vehicle, which he had fitted up as a sledge, back to its motor car form, and, driven by means of the propeller at the rear, it made a journey last week from Paris to Lyons, a distance of about 320 miles. It is said that the car attained a speed of 62 miles an hour, and was easily driven up a hill of which the gradient was 1 in 10.

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MOTOR BOATING.



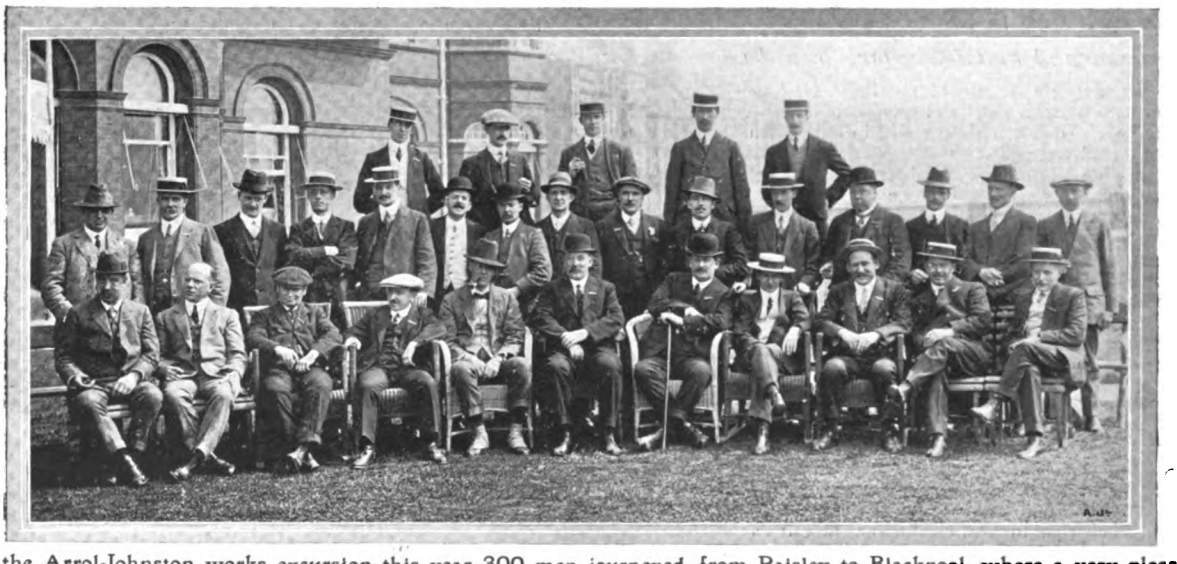
Mr. E. Mackay Edgar's "Maple Leaf" travelling at 40·1 m.p.h. in the British International Trophy Eliminating Trials held at Netley last week-end. Mr. T. O. M. Sopwith is at the helm.

London to Cowes Race.

THE Annual Long Distance Cruise of the British Motor Boat Club is fixed to take place on Saturday next, the 27th inst. It is anticipated that there will be more competitors than ever before, and the race will start from Erith at 9 a.m., while the finish will as usual be at Cowes.

Motor Boat Racing at Netley.

ALTHOUGH the Eliminating Trials for the British International Trophy were rather disappointing owing to the fact that only three boats materialised for them, the two days' Regatta arranged by the Royal Motor Yacht Club on Friday and Saturday of last week provided some good sport. On the first day the first race for motor boats was for the restricted class, but only Mr. J. Bird's "Rip II" and Col. Cowper Essex's "Pixie II" were ready, and the former after making a bad start gave up, leaving "Pixie II" to finish alone. There were eight starters in the race for boats under 20 knots for the Masser-Horniman Challenge Trophy over a distance of about thirteen nautical miles. "Myaou," Mr. O. Gregg Carr's boat, was first home, but as she had exceeded her declared speed she had to suffer disqualification, leaving Mr. F. P. Armstrong's "Solace" to take the first prize, with Commander Cumming's "Commander," only four seconds behind, taking second prize, and the Earl of Hardwicke's "Spring Maid" third. Then followed the eliminating trial of the Challengers for the British International Trophy, but unfortunately Mr. D. Hanbury's boat, "Silver Heels," was an absentee. The course was from the usual starting line to the Calshot Spit gas float, to Calshot Lightship, to the N.W. Netley Buoy, three times round and finish from the S.E. over the starting line, a total distance of about 33 nautical miles. The start was given at half past four



For the Arrol-Johnston works excursion this year 300 men journeyed from Paisley to Blackpool, where a very pleasant day was spent. At the lunch at the Metropole, Mr. Pullinger congratulated the men on the year's work, and announced that their new works would be completed in December, when the output would be considerably increased. In our photograph above, taken at Blackpool, Mr. Pullinger is in the centre, and Mr. Lowe, in the straw hat, is next but one to the right.

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when the Marquis of Anglesey's "Mona" and Mr. N. C. Niell's "Milmar" got away in splendid style. "Maple Leaf IV" was 9 mins. 34 secs. late in starting, but she travelled at such great speed that she won the race by 3 mins. 4 secs., "Mona" being second. "Maple Leaf IV" finished at 5 hrs. 28 mins. 42 secs., "Mona" at 5 hrs. 31 mins. 46 secs., and "Milmar" at 5 hrs. 34 mins. 33 secs. The last race was a handicap sweepstake for all comers, run in two series. In the first four boats not exceeding 15 knots "Commander" was the winner, Mr. H. W. Hutchinson's "Dranoel" second, with Solace third, while in the second series, for boats over 15 knots, victory went to Mr. C. Lance Gamble's "Dyack," with "Pixie II" as the runner up and "Rip II" third.

On Saturday the restricted race brought out three starters, but "Minimum" and "Rip II" both gave up, so that "Pixie II" again finished alone. There were ten starters in the handicap for motor boats under 15 knots, and a well contested event ended in a win for Mr. A. H. Ramsden Tagore's "Mildred," with E. Findlay Smith's "Zoroaster" second and "Spring Maid" third. The next item on the programme was the Speed Trials for the B.I.T. Challengers, in which "Maple Leaf IV," "Mona," and "Milmar" each made four runs over the measured mile, but no times were published. None of the B.I.T. boats started in the race for boats with any speed, in which, however, the competitors included the Duke of Westminster's "Ursula," which won fairly easily, with Mr. Mawdsley Brooke's "Baby VI" taking second prize and Mrs. Edgar Thornton's "Columbine" third. The last race of the day was a handicap for boats exceeding 15 knots, in which "Dyack" was the winner, with "Pixie II" second and Mr. J. M. Gorham's "Quicksilver" third.

NEW COMPANIES REGISTERED.

Friswells, 1, Albany Street, N.W.—Capital £30,000, in £1 shares. Manufacturers of and dealers in motor and other cars, &c. Acquiring certain assets and liabilities of Friswell (1906), Ltd.

Martin Pneumatic Motor Wheel, Ltd.—Capital £40,000 (25,000 £1 pref. and 300,000 1s. deferred). Under agreement with European Automatic Improvements, Ltd.

Private Companies.

British Business Motors, Ltd.—Capital £50,000 (30,000 £1 cum. pref., 18,000 ordinary, and 40,000 1s. deferred). Acquiring business lately carried on by Sturmey Motors, Ltd., at Coventry; also freehold and leasehold properties at Coventry known as the Lotis Factory and the Hewers Car Bodies Works. First directors, S. F. Edge, H. G. Burford (managing director), and H. Tempest Vane.

Harrow Motor Carriage Co., Ltd., 43, Claremont Road, Wealdstone, Harrow.—Capital £2,000, in £1 shares. Acquiring motor and carriage business carried on by G. Page at 43 and 45, Claremont Road, Wealdstone.

Marine and General Oil Engines, Ltd., Caxton House, Tothill Street, Westminster.—Capital £5,000 in 4,750 shares of £1 each and 5,000 shares of 1s. each.

M. G. and G. Motor Patents Synd., Ltd.—Capital £100, in £1 shares.

Morris and Orme, Ltd.—Capital £500, in £1 shares (100 preference). Motor car and cycle dealers and repairers, &c.

Motor Hiring Co. (Manchester), Ltd.—Capital £7,000, in £1 shares. Acquiring business of taxicab and charabanc proprietor carried on at 57 and 58, Whitworth Street, Manchester, by W. E. Curtis as the Motor Hiring Co.

Mudoppoze, Ltd.—Capital £5,000, in £1 shares. Acquiring business of the Mudoppoze Motor Mudguard Co.

Oil and Petrol, Ltd., 56, Moorgate Street, E.C.—Capital £25,000, in £1 shares.

Quick Delivery Co., Ltd., 49, Old Hall Street, Liverpool.—Capital £50,000, in £1 shares. Forwarding agents, transporters of goods and chattels by motor, motor van, &c. First directors, W. L. Peake and J. J. Whitney.

"Precision" Motors, Ltd.—Capital £100, in £1 shares.

Reno Sphinx Motor, Ltd.—Capital £12,500, in £1 shares (6,000 pref.). Under agreement with La Garenne, Ltd. First directors, J. S. Critchley and J. W. H. Evans.

South African Motor Transport Co., Ltd., 26, Shaftesbury Avenue, W.—Capital £10,000 in £1 shares. Acquiring concession granted by Sydney Straker and Squire, Ltd., for the sale of their motor vehicles in South Africa, &c. First directors, Right Hon. Lord Tenterden, W. J. Potter, and Lieut. H. T. Smith-Dorrien.

Taxi Supplies, Ltd.—Capital £500, in 10s. shares.

Variable Pumps and Motors, Ltd., 85, Gracechurch Street, E.C.—Capital £5,000 in £1 shares. Acquiring from R. F. Carey inventions relating to improvements in pumps and motors, &c. First directors, R. F. Carey, E. H. Riches, H. Worsley, J. Burnel, and Emil Burnel.

BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1912.

In the trade returns for January, 1909, for the first time, *real* annual import and export trade totals were comparable, as, prior to 1908, no record was made of cars of travellers either coming into or leaving this country, the values and numbers being simply included in the export and import figures.

NOTE.—In our issue for January 13th, 1906, we published in one table the full figures of British Exports and Imports for 1902, 1903, 1904, and 1905. Prior to 1902, motor cars were not classified separately. In the issue for January 12th, 1907, the complete figures for 1906 were published; for 1907 in January 11th, 1908; for 1908 in January 16th, 1909; for 1909 in January 15th, 1910; for 1910 in January 14th, 1911; and for 1911 in January 13th, 1912.

JUNE.	1911. June.		Six Months ended June.		1912. June.		Six Months ended June.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
IMPORTS.								
		£		£		£		£
Cars ...	525	152,283	3,379	893,306	797	214,086	4,983	1,121,704
Chassis ...	588	159,744	3,627	937,636	718	169,793	3,819	926,435
Parts ...	—	243,459	—	1,225,235	—	271,886	—	1,626,594
	1,113	555,486	7,006	3,056,177	1,515	655,765	8,802	3,674,733
Motor cycles	199	5,973	933	28,528	124	3,803	793	24,828
Parts ...	—	4,144	—	33,413	—	14,886	—	57,292
	1,312	565,603	7,939	3,118,118	1,639	674,454	9,595	3,756,853
EXPORTS.								
Cars ...	282	109,157	1,918	772,947	238	87,391	2,192	851,014
Chassis ...	60	24,211	332	139.269	53	19,855	521	193,495
Parts ...	—	76,451	—	546,853	—	94,088	—	574,365
	342	209,819	2,250	1,459,069	291	201,334	2,713	1,618,874
Motor cycles	354	13,408	2,626	95,878	559	23,115	4,931	195,311
Parts ...	—	3,731	—	30,393	—	9,878	—	74,187
	696	226,958	4,876	1,585,340	850	234,327	7,644	1,888,372
FOREIGN AND COLONIAL RE-EXPORTATION.								
Cars ...	98	24,872	472	123,857	47	14,705	417	134,590
Chassis ...	26	6,958	108	33,210	13	4,123	304	82,713
Parts ...	—	16,417	—	114,470	—	13,926	—	120,813
	124	48,247	580	271,537	60	32,754	721	338,116
Motor cycles	4	123	41	1,507	8	414	63	2,630
Parts ...	—	578	—	2,386	—	725	—	4,029
	128	48,948	621	275,430	68	33,893	784	344,775

Note.—Total number of cars (including touring and other cars not for sale) during June, 1912—

Imports—1,249 (total for 1912, 6,577), value £516,472 (total for 1912, £2,140,756).

Exports—387 (total for 1912, 2,850), value £169,015 (total for 1912, £1,251,130).

Foreign and Colonial re-exports—118 (total for 1912, 876), value £58,582 (total for 1912, £428,003).

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ROUNDABOUT NOTES.

"I HAVE driven my 15-h.p. S.C.A.T. car for two years and have had no repairs except tyres. The self-starter has worked without a fault. I was away in France from the end of November, 1911, to the end of February, 1912. When I came home the engine started on the first touch of the lever. The gauge showed about 350 lbs. after three months." So writes Col. J. Massey Westropp from Clonlara, Limerick.

WE understand that, at the last moment, the two 3-litre cars entered by Mr. Th. Schneider, of Besançon (France), for *l'Auto* cup, with a motor of 80 by 149 mm. were not ready to start, and so it was decided to run the regular standard model chassis with a bore and stroke of 80 by 140 mm., the same as catalogued and sold to the public. One of these cars was driven by Croquet, and came in fourth in the Light Car Class, being only defeated by the three Sunbeams in the race, a very creditable performance, considering the engine capacity of this car is much smaller than that of other competitors.

A VERITABLE guide and Enquire Within regarding everything pertaining to tyre repairing by the H.F. process, is the new issue of Messrs. Harvey Frost and Co.'s book of the vulcanizing business. Now in its third edition, the new issue carries matter of an informative and attractive character from the standpoint equally of the trader who has an established vulcanizing business, of the trader who has recently embarked upon it, and of the trader who is on the verge of so doing. We understand that the new issue is being rapidly absorbed and early application is desirable. Write to 39–41, Great Eastern Street for list No. 50.

A VERY useful and handy booklet has just been got out by the Rotax Motor Accessories Co. It includes hints on the fitting and maintenance of the Leitner Rotax Dynamo Lighting equipment for cars, but it also has a lot of blank pages for notes, &c., while there are pockets for your licence, visiting cards, and stamps. The book is very nicely put together in leather, and will no doubt be welcomed by owners of these lighting equipments, while anyone else who would like to obtain a copy may do so at the nominal charge of one shilling from the Rotax Motor Accessories Co., 43 and 45, Great Eastern Street.

FROM the Ariel and General Repairs, Ltd., we learn that the 10-h.p. Hurtu car has proved such a success that they are introducing a somewhat larger model on similar lines which will be known as the 14-h.p. Hurtu. It will have a four-cylinder engine of 75 mm. bore and 120 mm. stroke.

THE fact that it is possible to remove the rim from the wheel or the tyre from the rim in less than one minute, and that tyre and rim can be fitted to the wheel in less than two minutes, is no doubt a great factor in the daily growing popularity of the Warland Dual Rim.

THE pressure at the Argyll works prevented a complete stoppage of the West of Scotland holidays, and the engine-building and finishing departments had to be kept going throughout. Incidentally it may be mentioned that the 12-h.p. Argyll car will now be fitted with the diagonal brakes, which have proved so efficient in the Argyll sleeve-valve cars.

THE winning Darracq in the 100 m.p.h. Short Handicap at Brooklands, on Saturday last, was fitted with Kempshall tyres.

MR. C. G. POTTER, of Stowe, Lichfield, writes to the Stewart Precision Co. that he finds the continual buying and experimenting with carburettors rather an expensive matter, but after his experience with the Stewart Precision, it will take a lot of persuasion to make him adopt any other carburettor. And he is not alone in this experience.

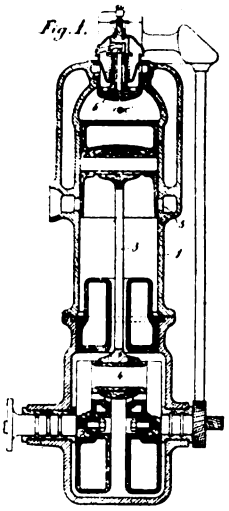
FROM time to time Messrs. De Dion Bouton (1907), Ltd., issue some telling classified lists of owners of De Dion cars. One of the latest is a list of 100 lady owners of De Dion cars up and down the country.

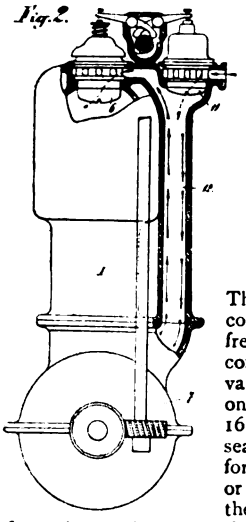
BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

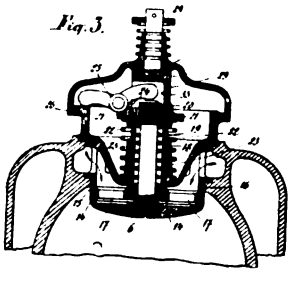
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

14,261. June 15th, 1911. Date claimed under International Convention, Aug. 22nd, 1910. Theophile Berlize, 25, rue de Menin, Brussels.—The invention consists in a double valve for admitting the gases into the cylinders of explosion or combustion motors. The object of the invention is to construct a valve which with a given diameter and lift provides a sectional area of admission larger than the valves hitherto constructed. This





valve consists of a pair of superimposed valves, or, more correctly, a ring and a valve superimposed, which are operated simultaneously. The valve has a disc and a ring opening rapidly and simultaneously, the opening of one of which is effected by a suitable pusher, causing at the same time the actuating of the second. Fig. 1 is a sectional view of the motor, and shows the position of the valve relatively to the explosion chamber. Fig. 2 is a section through the pipe conveying the gases, the arrows indicating the course taken by the gases. Fig. 3 is a section on a larger scale showing separately the arrangement of the valve. The cylinder, 1, with piston actuates the crank, 4, through a connecting rod, 3. The cylinder has ports, 5, for exhaust. The fresh gases enter through the valve, 6. The crank casing, 7, acts as a pump body.



The gases flow through a valve, 11, into a column, 12, which serves for conveying the fresh gases into the crank casing, and for conveying these gases into the cylinder. The valve, 6, Fig. 3, comprises a ring, 14, resting on the valve seating, 15, in the valve box, 16. This ring, 14, acts at the same time as seat for the valve, 6. Openings, 17, are formed in the ring, 14, for the passage of air or of the gases. The valve, 6, is subject to the action of a spring, 18, which bears on the one hand on the end, 14, of the sleeve, 19, and on the other against a nut, 20, fixed on the end of the spindle of the disc, 6. On the sleeve, 19, is a shoulder, 21, against which rests the spring, 22, of the valve, 14, which spring bears also against a dished part, 23. The piece, 21, carries a lug, 24, to which a rocking lever, 25, is jointed, which bears against a fixed part, 26. This lever, 25, leaves between its free end and the end of the spindle of the valve, 6, a slight play, sufficient for enabling this valve to rest on its seat. The valve acts in the following manner: A pusher, 29, acting on the sleeve, 19, through the medium of the shoulder, 21, forces the ring, 14, to descend and to carry with it the shoulder, 21, the sleeve, 19, the spring, 18, and the disc, 6. The lever, 25, likewise descends as a consequence, but as one of its ends rests on the fixed part, 26, it depresses the valve, 6, and therefore doubles the area of passage. In the bottom of the pusher, 29, a recess, 33, is formed for the lever arm.—June 26th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published July 11th, 1912.

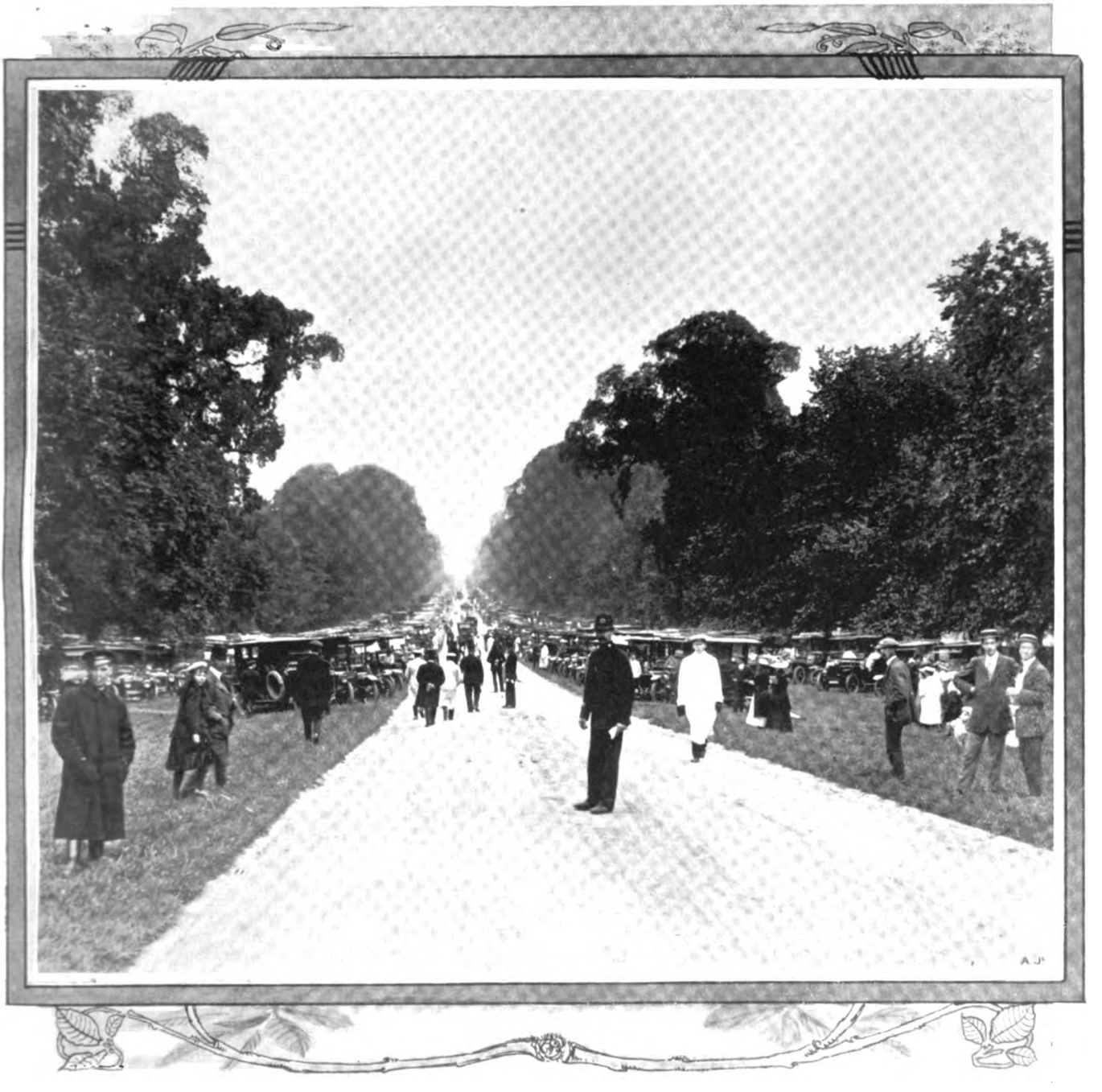
14,491. W. F. DUGINS. Rotary engine.
14,597. DAIMLER MOTOREN GES. Mountings and bearings for cardan-shaft.
14,598. DAIMLER MOTOREN GES. I.C. motors.
14,757. J. SPYKER. Spring suspension.
15,006. L. WIRTZ. Change-speed and reversing gears.
18,055. R. KUTSCHINSKI. Explosion turbine.
18,380. A. CRAIG, J. S. NAPIER AND COVENTRY CHAIN CO. Chain gearing.
19,746. M. G. C. DODWELL. Elastic tyres.
20,376. J. D. BELL. Starting I.C. engines.
20,647. H. ARON. Wind-screens.
20,736. J. D. BELL. Starting multi-cylinder I.C. engines.
22,939. SCHELLE AND CO. Exhaust silencers.
24,665. J. KRUK. Four-stroke cycle engines.
25,907. H. E. COFFIN. Valve gear.
26,617. J. STEVENSON. Rotary or turbine engines.
26,917. E. PETTERSSON AND STOREBRO AKT. I.C. engines.
27,453. A. P. ELTEN. Wheels.
27,779. O. J. KARSCH. Automobile chassis.
27,962. J. M. STRACHAN. Automobile construction.
28,510. M. LEGER. Two-stroke explosion engine with revolving cylinders.
28,905. A. TURNBULL. Emergency tyres, rims or wheels.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 603. (No. 30, Vol. XVII.) JULY 27, 1912. [Weekly, Price 3d. Post Free, 3½d.



THE ROYAL GARDEN PARTY AT WINDSOR.—Just a few of the cars, as seen down the Long Walk where the motors were garaged.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

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Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

The Lesson of the Standard Car Race.

When we reviewed the Standard Car Race of last year, we were able to point more than one useful moral and to deduce lessons of great comparative value from its results. Nothing would have given us greater pleasure than to have been able to pronounce the same verdict upon the race of 1912, and according to all the laws of progress it ought to have been possible for us to have done so. Unfortunately, however, it is quite impossible to say even that last week's race was a satisfactory one from any point of view at all—to put the matter quite plainly, the whole event must be written down a failure. Let us contrast the two races and see wherein lay the difference. Last year the R.A.C. made its announcement full early that it intended to hold a hundred-laps race for the popular "fifteen-point-nines." The cars were to be absolutely standard, according to makers' catalogues, so far as the whole of the chassis details were concerned, and things were allowed to go at that. Intending entrants had any amount of time to digest the conditions and prepare their cars for the race, with the pleasing result that, although it was currently believed that the trade was absolutely inimical to racing, a round two dozen of entries were received, of which no less than twenty duly started for the race itself. After a minute inspection of the competing vehicles by the Club's officials, there was found nothing in the way of a variation from standard to justify the disqualification of a single car. The race was well fought out, interesting from start to finish, and its lessons were useful alike to the trade itself and to the intending purchasers of cars. On all counts, then, the race must be held to have entirely justified itself, and, as we said at the time, it looked like becoming a most successful annual fixture.

Now let us turn to the race of last week. Early in the year the Club allowed it to become known that it intended to promote another race for standard cars some time in the summer, but in order that intending competitors should be prevented from doing what they had not attempted to do in 1912, the Competitions Committee took the extraordinary line that they would not make any definite pronouncement regarding the conditions under which the race was to be run until three weeks before the date on which it was to take place. They were told at the time that this was quite sufficient to kill all the interest in it, both trade and public. It is an axiom that in order that a function or an event of any kind shall be successful it must be talked about beforehand, and thus made a subject of common interest. Last year we heard nothing but Standard Car Race for weeks before the event actually took place; this year we have hardly heard it mentioned, and this is scarcely to be wondered at, since there was nothing of which to talk. Well, in due season the Club made its announcement, which left everyone cold. In the result the entries were just over half last year's total—fourteen, to be quite exact, and of these three failed to materialise on the morning of the race, three were disqualified for non-compliance with the Club's definition of "standard" chassis, leaving eight actual starters, of whom but three finished the course! Truly a painful contrast to the 1911 event. The fact of the matter is that the method adopted by the Club for ensuring strict compliance with the "standard" condition seems to have over-reached itself. If the Club had no heart in the competition it would have been easy to have taken the line of least resistance and declined the work of promotion. But, whatever the reasons, there is no getting away from the fact that the result was a fiasco. The Standard Car Race may now be regarded as being as dead as Herod. Even if the Club set out to promote another race of the kind in 1913, it is pretty certain that the trade having in the persons of the firms which com-

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peted this year simply taken part in an expensive farce, would have none of it. It is a great pity, and we can now only deplore the mistaken policy which has killed a really interesting event.

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Will Road-Racing be Revived?

It was almost inevitable that the brilliant success of the Sunbeam team in the race for the Coupe de *l'Auto* should revive discussion upon the desirability of going back upon the decisions which led to the abandonment of the Tourist Trophy and "Four-inch" races in the Isle of Man. There are many arguments pro and con, and it is possible to arrive at conclusions which seem quite satisactory from either point of view. Taking first the main argument for reviving road racing in the island, its advocates take the line that racing for the improvement of the breed is just as necessary in 1912 as it was in 1902. A short while since we should have said unhesitatingly that the time had passed when racing was of any use to the trade other than to supply an excellent, if expensive, advertisement to the fortunate winner of whatever race might be the subject of discussion. But we are bound to confess that the Sunbeam performance in France has led us to modify our views somewhat. It is not by mere accident or luck that a team of three cars can stand up to the furious stresses of such a race as that for this year's Grand Prix, while 90 per cent. of their competitors fall out by the wayside. There must be some outstanding excellences of design and construction, some points wherein they are probably better than the others, to account for it. And when we come to look for reasons, we are at once up against the fact that this firm is one which has consistently adopted the racing policy, which in turn brings us to the proposition that they have learnt and applied the lessons learnt in racing, which have been denied to those with less experience of the road and track. *Per contra*, it may be argued that others with equal racing experience failed under the Grand Prix test, but in answer to that we should be inclined to advance the opinion that they had not read the lessons with quite the same ability to profit by them. Therefore, we can take the main proposition that racing is of distinct use for development purposes as being in great measure proved.

The principal argument of the anti-racing firm is that the game is not worth the candle—that it is exceedingly expensive even to the winners, and next door to ruinous to the losers. The latter is true—racing is certainly a wildly expensive game even for those who do best at it, so we may let that part of the question go with the admission already made. But as to whether it is worth the candle, that is surely a question for the individual or the firm to decide. Admitted that a revival of racing would mean that certain firms who have long ago given up appearing in any of the big events would be almost forced by circumstances to come out of their retirement, the question seems to arise as to which entails the greater hardship—to continue the embargo against the expressed desires of a number of rising firms, or to remove it, and practically force some of the older concerns to race against their inclinations? That, it seems to us, is the real crux of the whole racing question, and it must be the trade collectively which must decide which way the balance must fall. Decided the question will have to be, for already we hear of a strong feeling in favour of another race in the Isle of Man in 1913. Whatever happens with regard to the actual holding of a race, there will certainly be a most interesting discussion of the whys and wherefores between now and the end of the year.

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District Councillors in Conference.

A very large number of delegates from the various urban district councils throughout the country have been thoroughly enjoying themselves at Clacton, the excuse for the gathering being a conference of the Urban District Councils Association. In the intervals of golf and cricket matches, the delegates have discussed many problems related to the administration of urban districts, from the collection of house refuse to the prevention of Asiatic cholera, and it was hardly to be expected that, in so comprehensive a programme, the motor vehicle would not find a place. So far as the reports we have to hand are informative, this august assemblage has only debated one side of the self-propelled traffic problem—that of the motor omnibus. The representative of Twickenham opened the ball with a protest against the indiscriminate use of the roads by these vehicles, the companies, as he said, selecting the routes without paying any regard to the fact that some of the roads were not constructed to carry heavy traffic. The local authorities consequently were put to heavy expense in maintaining their roads, congestion became serious, and noise was inevitable. Next came a genius from Walthamstow, who made the highly original suggestion that the time had come when a wheel-tax should be imposed. Possibly he had not heard that once upon a time a wheel-tax *was* imposed, and was not, to put it mildly, a conspicuous success. Then a Woodford representative plaintively asked if it was proper that a private company should come into an urban district, to which it contributed nothing towards the maintenance of the roads, and at its own caprice select streets never constructed for heavy motor traffic? Unfortunately, he does not seem to have told the conference what these private companies do with the streets when they have selected them. Do they, by any chance, take them away and make pets of them? The first really serious note was struck by an urban district councillor from Surbiton, who advanced the opinion that the natural route for motor 'buses to take was over main roads. Therein we are compelled to disagree with him, for it seems to us that one of the great *rôles* of the motor 'bus is that of a feeder of the main road routes—the linking up of one main artery with another.

The upshot of the debate was, that the conference expressed the view that "it was urgently necessary, having regard to the risk of serious accidents, the detriment to property, and the loss and inconvenience to tradesmen and others arising from the use by motor 'buses and heavy motor cars of highways . . . . which in the

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judgment of the local authorities were unsuitable for traffic of this description, that requisite powers should be conferred upon local authorities charged with the maintenance of highways to limit and define the routes to be taken by such traffic."

Fortunately, there is not the slightest probability of Parliament consenting to widen the powers of local authorities in the direction indicated, but it may be well to keep an eye upon developments. A pretty pass things would come to if every little urban council had practically unlimited powers to define what routes should be taken by motor 'bus or any other form of traffic. It is quite easy to see that by a "conspiracy" of two or three neighbouring authorities the highway would be absolutely and completely banned to a form of traffic which affords the maximum of convenient and rapid transport to the public. Apart altogether from the danger of combination to which we have alluded, we should not be at all content to trust to the judgment of the best-disposed of local authorities. Judgment upon broad lines, as a matter of fact, is a quality in which the average urban district council is usually woefully lacking—it is enough to read the reports of their meetings to convince one of that. However, the delegates to the conference with the high-sounding name have, we happen to know, had a most enjoyable holiday, and if they have occupied some of their time in letting off superfluous steam—well, that has doubtless been a part of the enjoyment.

Southport Justices and Motorists.

The Lancashire watering place of Southport seems to be more fortunate in its local magistracy than many other places in which justice is dispensed by the Great Unpaid. We confess it was with something like astonishment that we read the other day of a case in which a motorist was summoned by the police for driving to the common danger. The usual police evidence had been given as to speed and so forth, and duly contradicted by the defendant and one of his passengers, when the Bench stopped the case, said they had heard quite enough evidence, and dismissed the summons! Surely this must be something like a record. It is refreshing to find that there is at least one magisterial bench in the kingdom which takes the sane and sensible view that cases against the motorists, as motorists, are to be adjudicated absolutely upon their merits like any other class of alleged offence. In the ordinary way the drunk and disorderly, or the wife-beater gets the advantage of the fundamental maxims of British law, that where there is any doubt the defendant shall have the benefit of it. But in all the recorded cases in which the motorist has been concerned, the rule has been applied in the opposite way. Or, perhaps, it would be better to put it that magistrates almost invariably decline to face the admission that there may be a doubt. What an object lesson the Southport method is to the Shallows of Godalming and Huntingdonshire! We congratulate Southport upon possessing a fair and broad-minded magistracy.

The L.C.C. and its Tramways again.

Poor Sir John Benn must be spending many sleepless nights on account of his beloved tramways. At a recent meeting of the L.C.C. he called attention to the statement which has been made to the effect that by the end of next summer the L.G.O.C. will have 4,000 omnibuses running, and asked if the Highways Committee would report what steps they proposed to take in order to protect the tramway property of the ratepayers. Unfortunately for Sir John's peace of mind, the Vice-Chairman of the Committee could give him very little satisfaction under this head—all he said was that he knew of no circumstances likely to make such a report serve any useful purpose.

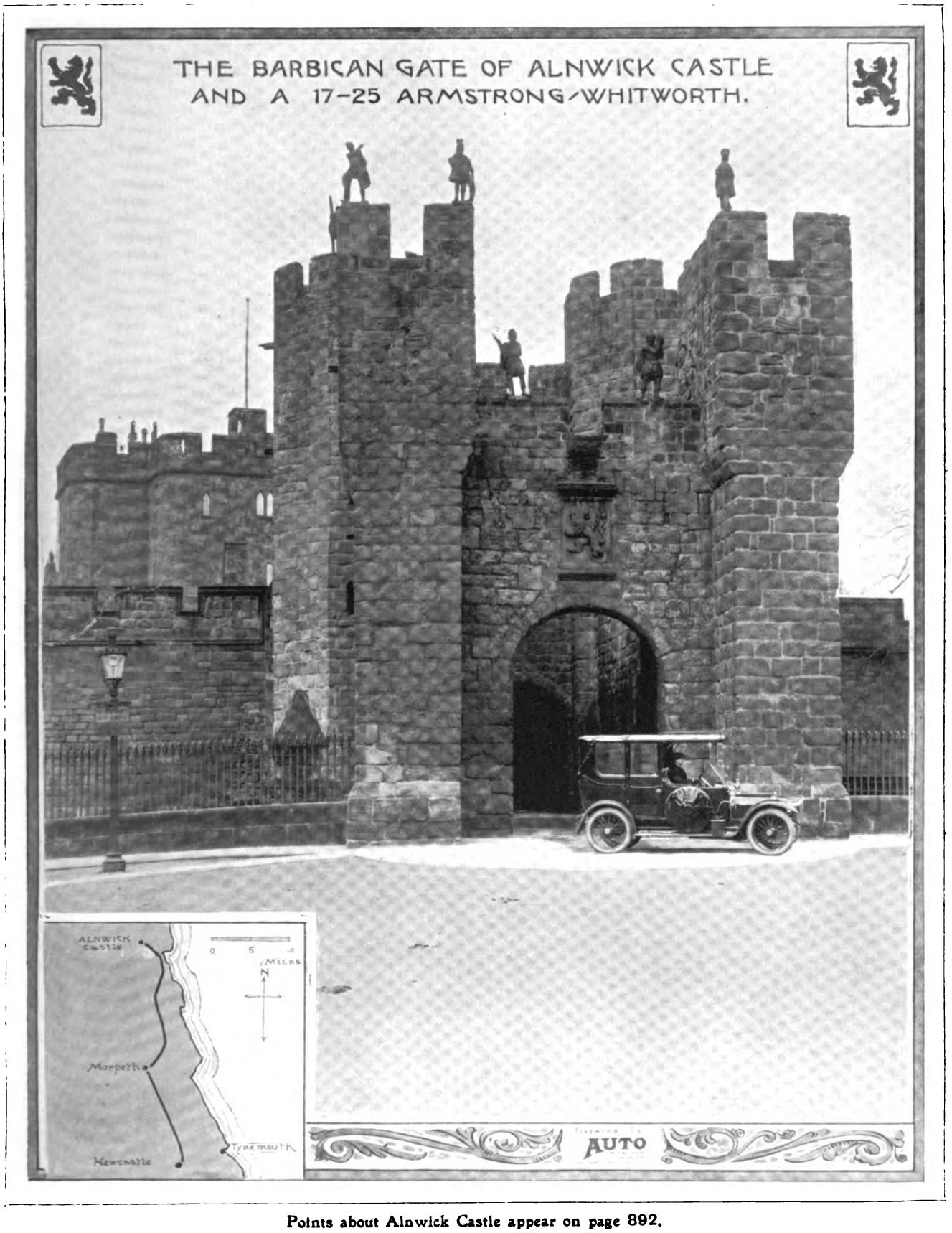
Exactly. It may be unfortunate for the London ratepayer that there exist no means of protecting the property into the acquisition of which he has been rushed by a set of amateur traders, but the unpleasant fact remains that he is saddled with an undertaking which, to put it plainly, is utterly incapable of competing on commercial lines with a commercial concern running a more efficient and up-to-date form of traction. The L.C.C. tramways are suffering, and their sponsors are getting afraid, simply and solely because they are meeting the inevitable fate of all anachronisms. There is nothing more in it than that; and, as London ratepayers ourselves, we can say from the heart more's the pity that our affairs have been entrusted to people who rush blindly into enterprises of which they know nothing and into expenditure of which they cannot see the end.

"A Little Knowledge ——."

That was an amusing case which was heard the other day at the Marylebone Police Court, in which the police accused a motor cyclist of riding to the common danger in the Harrow Road. Evidently the young man was of a legal turn of mind, for, forgetful of the proverb that "He who has himself for a lawyer has a fool for his client," he undertook the conduct of his own case and subjected each of the witnesses for the prosecution to a searching cross-examination. He scarcely seems to have helped his case, for, according to the newspaper reports, he simply succeeded in eliciting the facts that he was riding a racing machine, that it was making a terrific noise, that he never slackened speed, and that had a cyclist, with whom he nearly collided, not thrown himself off his machine, he, the defendant, must have run into him. Remarking that never in the course of twenty-two years' experience as a magistrate had he come across a man who was so determined to give himself away, Mr. Denman mulcted the amateur lawyer in £5 and costs. He is probably wondering now how much he paid for riding to the common danger and how much for not being able to control his curiosity to know exactly what were the impressions of the various witnesses regarding his style of handling a racing motor bicycle. And he may come to the conclusion that the entertainment was worth the money, though it may appear to be a little bit dear to some of us.

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WITH THE CAMERA AND THE CAR.



Points about Alnwick Castle appear on page 892.

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HILL-CLIMB AND SPEED TRIALS IN SOUTH WALES.

A SPLENDID success was scored by the joint efforts of the South Wales A.C. and the Cardiff M.C. in their hill-climb at Caerphilly, on Thursday of last week, whilst the speed trials on Porthcawl Sands on Saturday would have been as great a success had the wind and sun done their part in drying the sands. In the hill-climb a very big programme had been prepared, as in addition to the eight classes for cars there were eleven for motor cycles. The two-wheeled machines were sent up the hill first, and to one of them, a 3½-h.p. Rover, piloted by C.T. Newsome, fell the honour of making fastest time of the day. It ascended the hill, which was about three-quarters of a mile long, in 1 m. 11 s., and the fastest time in the car section was 1 m. 12⅗ s., made by Mr. G. H. Woods on his 20-h.p. Crossley, the second fastest being Mr. F. Burgess on the 15-h.p. Calthorpe in 1 m. 14⅖ s.



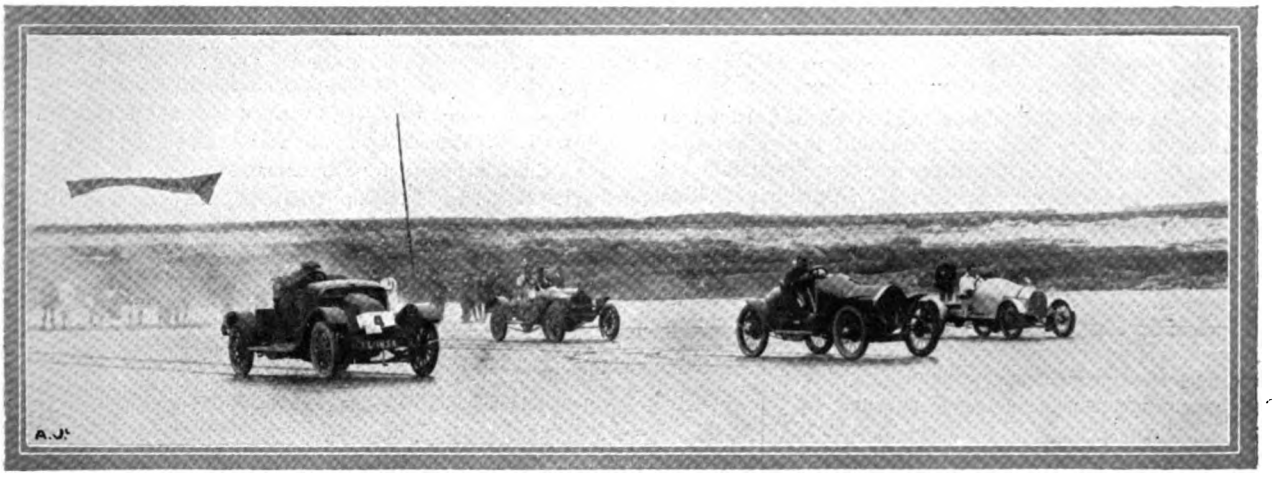
Helping Mr. E. J. Wakeley's 11·9-h.p. Arrol-Johnston out of a difficult situation. Some of the cars at the Cardiff Meeting on Porthcawl beach were surprised by unexpectedly sinking into the soft sand.

The course was a very tricky one, on which the handiness of the lighter motor cycles more than made up for the increased speed obtainable on a straightaway course by the higher powered machines. The motor cycle winners were :—Class I, H. C. Newman (2½-h.p. Ivy); Class II, H. Britton (2¾-h.p. Douglas); Class III, C. T. Newsome (3½-h.p. Rover); Class IV, C. T. Newsome (3½-h.p. Rover); Class V, H. Britton (3-h.p. Pioneer); Class VI, A. V. Shirley (7-h.p. Indian); Class VII, R. M. Lewis (3½-h.p. Premier); Class VIII, A. B. Wade (6-h.p. Zenith sidecar). The other classes were for Club members and were won by R. W. Jones (3½-h.p. Rudge), H. Wessendorff (3½-h.p. Premier), and A. V. Shirley (7-h.p. Indian). The formula prizes were awarded as follows: Class I, F. W. Barnes (2½-h.p. Zenith). Class III, V. Taylor (3½-h.p. Rudge); Class VI, A. V. Shirley (7-h.p. Indian); Class VIII, A. B. Wade (6-h.p. Zenith sidecar). The two-wheelers having been disposed of, it was the turn of the cars. The entry list was a large one, but the competitors were sent off at regular intervals very methodically, and so the competition was completed in minimum time. The first two events did not attract a sufficient number of entries, and so the proceedings opened with the 70 mm. class, in which the winner was W. G. Tuck on the Humber, who also took the prize on formula. A feature of the proceedings was the presence of several lady drivers, three of whom were placed either on speed or formula, and Miss L. B. Starkey, on her 12–16-h.p. Sunbeam, won a first prize for the fastest run in the small club class. The complete results are given in the following table :—



THE CARDIFF AND SOUTH WALES CLUB HILL-CLIMB.—Mr. W. G. Scott's 15-h.p. Argyll nearing the summit, in the competition.

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THE SPEED TRIALS AT PORTHCAWL.—The start for the race for cars not exceeding 70 mm. bore.

Caerphilly Hill-Climb Results.

Open Events.

CLASS 3.—Bore of 4-cyl. cars not exceeding 70 mm.

	m. s.	Figure of merit.	Position on formula.
1. W. G. Tuck (11·9-h.p. Humber) ...	1 46	2·099	1
2. H. Ramoisy (12·1-h.p. Vinot)	1 58⅘	1·67	3
3. J. Thomas (11·9-h.p. Arrol-Johnston)...	2 16⅘	1·781	2

CLASS 4.—Bore of 4-cyl. cars not exceeding 75 mm.

1. F. C. Cottrell (12–14-h.p. Oryx) ...	2 1⅗	1·757	1
2. B. S. Marshall (12-h.p. Argyll) ...	3 3	1·546	2

CLASS 5.—Bore of 4-cyl. cars not exceeding 82 mm.

1. F. Burgess (15·9-h.p. Calthorpe) ...	1 14⅘	—	—
2. N. F. Bayliss (12–16-h.p. Sunbeam) ...	1 16⅘	2·758	1
3. E. Genna (12–16-h.p. Sunbeam) ...	1 23⅕	2·714	3
T. West (10-h.p. Mathis)	—	2·742	2

CLASS 6.—Bore of 4-cyl. cars not exceeding 91 mm.

1. R. S. Witchell (15-h.p. Straker-Squire)	1 25⅘	2·017	2
2. W. Stokes (16–20-h.p. Sunbeam) ...	1 40	2·140	1

CLASS 7.—Bore of 4-cyl. cars not exceeding 102 mm.

1. G. H. Woods (20-h.p. Crossley) ...	1 12⅘	1·777	1
2. O. J. Derrick (15–20-h.p. Mitchell) ...	2 7⅘	1·566	2
3. Mrs. W. G. Morel (30-h.p. Napier) ...	2 37⅘	1·193	3

Club Events.

CLASS 8.—Bore not exceeding 82 mm.

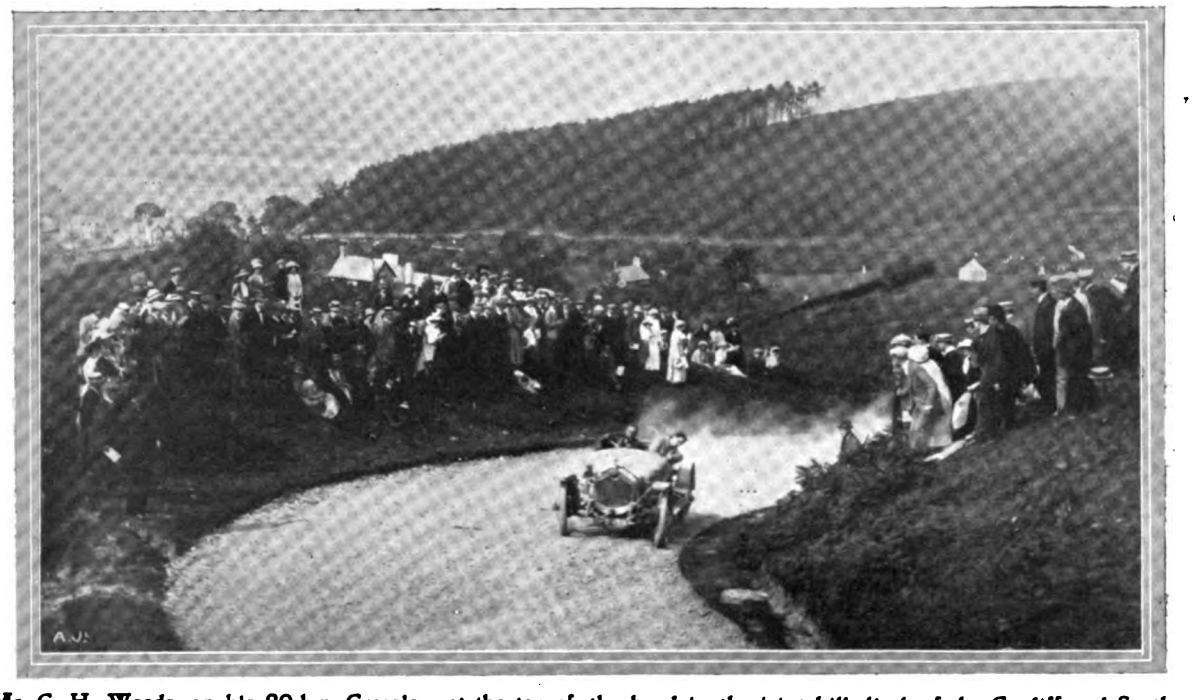
1. Miss L. B. Starkey(12–16-h.p. Sunbeam)	1 33	2·480	1
2. G. Kenshole (12-h.p. Talbot)	1 50⅘	2·090	2
3. R. J. Wakley (11·9-h.p. Arrol-Johnston)	2 6⅘	—	—
J. A. Gibbs (15·9-h.p. Arrol-Johnston)	—	1·935	3

CLASS 9.—Bore over 82 mm.

1. Wm. Graham (35-h.p. Daimler) ...	1 32⅕	1·174	2
2. R. E. Morel (35–40-h.p. Gladiator) ...	1 43⅘	—	—
3. W. H. Graham (57-h.p. Daimler) ...	1 52	—	—
J. W. Cooper (Riley)	—	1·405	1
Mrs. C. H. Bailey (Daimler)	—	1·166	3

CLASS 10.—Members' cars driven by paid drivers.

1. C. Davies (35-h.p. Daimler)	1 30	—	—
2. J. George (35–40-h.p. Gladiator) ...	1 40	—	—
3. A. Jones (57-h.p. Daimler)	1 51	—	—



Mr. G. H. Woods, on his 20-h.p. Crossley, at the top of the bend in the joint hill-climb of the Cardiff and South Wales Clubs.

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Result on Formula.

J. A. Gibbs's driver (15·9-h.p. Arrol-Johnston)...	2·022	1
W. C. Jones (15·9-h.p. Arrol-Johnston)	1·512	2
E. M. Sant (30-h.p. Napier)	1·273	3

The next night a dinner was held in Cardiff, at which the Lord Mayor presided and presented the prizes won in the hill-climb. On Saturday the speed trials were announced to take place at Rest Bay, Porthcawl. The course chosen for the trials was eminently suitable for the purpose, but unfortunately there was neither wind nor sun to clear up the moisture left by the receding tide, and consequently the sand remained soft. On the previous afternoon several competitors had indulged in practice spins, and as a result were full of praise for the natural track, but on Saturday it was a risky proceeding to allow a car to stand for any length of time on the sand, as several found to their cost, the vehicles rapidly sinking to the hub caps. It became necessary to postpone the start from one o'clock, and it was not until nearly four that it was deemed possible to start the competition. The motor cyclists were to be sent off first, but with one accord they refused, and after some delay it was decided to start the cars. As at the hill-climb, in which the same system of classification was used, the first two classes did not fill, and in Class III, which was run off in two heats and a final, the winner was W. G. Tuck on the 11·9-h.p. Humber, his time being 1 min. 26 secs., the second place being taken by G. F. Heath's 10-h.p. Mathis. Of course the soft surface of the sand slowed the cars considerably, and those which made the fastest time gave some wonderful displays in the way they distributed showers of sand and water into the air. The fastest speed was made by Mr. E. Genna, at a speed of 57·5 m.p.h., on a 12–16-h.p. Sunbeam, his time for the mile being 1 min. $2\frac{3}{5}$ secs., this time being made twice, once in the first heat of Class V and the other in the final. The results of the car events were as follows :—

Porthcawl Speed Trials. Distance 1 mile.

CLASS 3.—Bore of 4-cyl. cars not to exceed 70 mm.

Heat 1.

		m.	s.
1.	W. G. Tuck (11·9-h.p. Humber)	1	26
2.	G. F. Heath (10-h.p. Mathis)	1	$30\frac{1}{5}$
3.	J. Thomas (11·9-h.p. Arrol-Johnston) ...	1	$32\frac{4}{5}$

Heat 2.

1.	E. W. Brooks (12·1-h.p. Vinot)	1	$31\frac{2}{5}$
2.	A. J. Sheen (12-h.p. Sizaire)	1	$36\frac{4}{5}$
3.	O. J. Derrick (10-h.p. Hurtu)	1	51

Final.

1.	W. G. Tuck (11·9-h.p. Humber)	1	$26\frac{3}{5}$
2.	G. F. Heath (10-h.p. Mathis)	1	30
3.	A. J. Sheen (12-h.p. Sizaire)	1	$32\frac{3}{5}$

CLASS 4.—Bore of 4-cyl. cars not to exceed 75 mm.

1.	F. C. Cottrell (12–14-h.p. Oryx)	1	$35\frac{4}{5}$
2.	B. S. Marshall (12-h.p. Argyll)	1	37
3.	T. E. Maddocks (13·8-h.p. Jackson) ...	2	$11\frac{3}{5}$

CLASS 5.—Bore of 4-cyl. cars not to exceed 82 mm.

Heat 1.

1.	E. Genna (12–16-h.p. Sunbeam)	1	$2\frac{4}{5}$
2.	N. F. Bayliss (12–16-h.p. Sunbeam) ...	1	$7\frac{1}{5}$
3.	E. Lisle, Jun. (14-h.p. Briton)	1	$14\frac{2}{5}$

Heat 2.

1.	F. Burgess (15·9-h.p. Calthorpe)	1	$4\frac{3}{5}$
2.	R. Lisle (15·9-h.p. Star)	1	17
3.	A. E. Gould (15·9-h.p. Singer)	1	$22\frac{1}{5}$

Final.

		m.	s.
1.	E. Genna (12–16-h.p. Sunbeam)	1	$2\frac{3}{5}$
2.	F. Burgess (15·9-h.p. Calthorpe)	1	$4\frac{3}{5}$
3.	N. F. Bayliss (12–16-h.p. Sunbeam) ...	1	$7\frac{1}{5}$

CLASS 6.—Bore of 4-cyl. cars not to exceed 91 mm.

1.	R. S. Witchell (15-h.p. Straker-Squire) ...	1	15

CLASS 7.—Bore of 4-cyl. cars not to exceed 102 mm.

1.	H. W. Lewis (20-h.p. Ford)	1	$20\frac{1}{5}$
2.	O. W. Derrick (15–20-h.p. Mitchell) ...	1	$37\frac{2}{5}$
3.	Mrs. W. G. Morel (30-h.p. Napier) ...	1	$40\frac{3}{5}$

CLASS 8.—Unlimited.

1.	Mrs. W. G. Morel (30-h.p. Napier) ...	1	$39\frac{1}{5}$



Another example of the "surprises" which the sands at the Porthcawl Speed Trials had for some of the cars. Miss L. B. Starkey's 12–16-h.p. Sunbeam settling down.

Club Events.

CLASS 9.—Bore not exceeding 82 mm.

1.	Miss L. B. Starkey (12–16-h.p. Sunbeam)...	1	$15\frac{2}{5}$
2.	G. Kenshole (12-h.p. Talbot)	1	29
3.	D. J. Wakeley (11·9-h.p. Arrol-Johnston)...	1	$31\frac{3}{5}$

CLASS 10.—Bore over 82 mm.

Heat 1.

1.	R. E. Morel (35–40-h.p. Gladiator) ...	1	28
2.	Savill Hoyle (20-h.p. Overland)	1	34
3.	Mrs. W. G. Morel (30-h.p. Napier) ...	1	$34\frac{1}{5}$

Heat 2.

1.	H. West (27-h.p. Austro-Daimler)	1	$13\frac{2}{5}$
2.	W. H. Graham (35-h.p. Daimler)	1	21
3.	W. Graham (28–36-h.p. Daimler)	1	$27\frac{1}{5}$

Final.

1.	H. West (27-h.p. Austro-Daimler)	1	$10\frac{1}{5}$
2.	W. H. Graham (35-h.p. Daimler)	1	23
3.	W. Graham (28–36-h.p. Daimler)	1	$27\frac{2}{5}$

On formula Miss Starkey was the winner in Class 9, with D. J. Wakeley second and G. Kenshole third, while in Class 10 the formula handicap winners were H. West, J. D. Mewton (15-h.p. Austin), and Mrs. W. G. Morel.

The motor cycle classes were afterwards run off, the winners being as follows :—Class I, E. Kickham ($2\frac{3}{4}$-h.p. Douglas) ; Class II, W. F. Newsome ($3\frac{1}{2}$-h.p. Triumph) ; Class III, W. F. Newsome ($3\frac{1}{2}$-h.p. Triumph) ; Class IV, E. Chapman (5·6-h.p. Zenith) ; Class VI, J. J. Mathias ($2\frac{3}{4}$-h.p. Humber) ; Class VII, R. M. Lewis ($3\frac{1}{2}$-h.p. Premier) ; Class VIII, J. C. Moore ($3\frac{1}{2}$-h.p. Rudge). The fastest speed was made by Newsome on his Triumph, 1 min. 11 secs., equal to 50·7 m.p.h.

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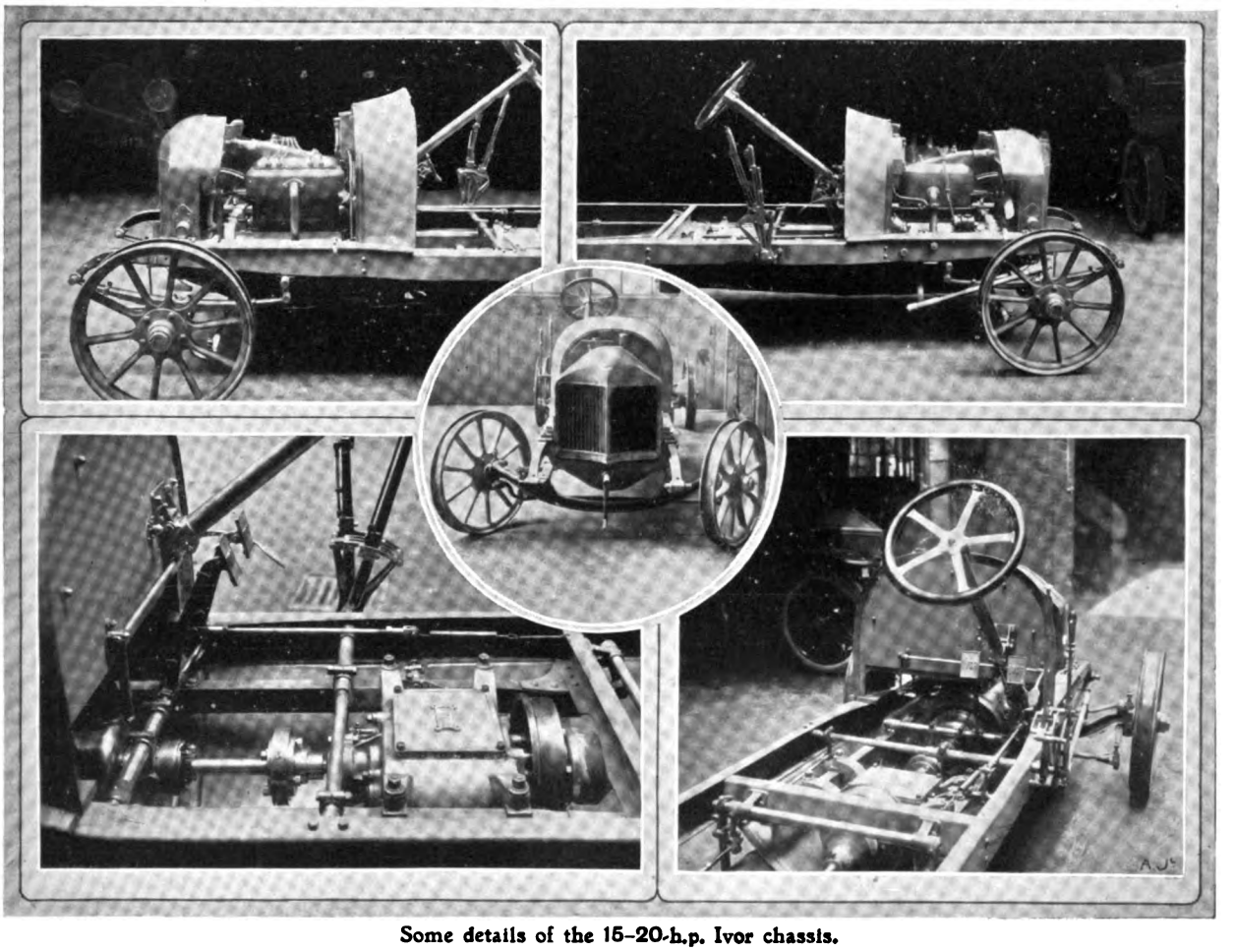
The Continued Growth of the R.A.C.

AT the end of last week the roll of members and associates of the R.A.C. contained no less than 31,547 names. The members and affiliated members of the Auto Cycle Union now number approximately 9,000.

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THE IVOR CARS.

ALTHOUGH Ivor Motors, Ltd., the manufacturers of Ivor cars, until recently have carried on their business from offices in Sackville Street, Piccadilly, they have now handed over the sale of their cars to Messrs. Barimar, Ltd., the well-known motor factors of Poland Street, W., to whom it is necessary that all enquiries concerning Ivor cars should in future be directed. In their showrooms is always to be seen at least one of the standard models, and as the 15–20-h.p. chassis that we ourselves inspected there the other day is similar to the other types, it will serve very well as the basis for a general description of what we consider to be a very interesting machine, and



Some details of the 15–20-h.p. Ivor chassis.

one, moreover, that well merits close investigation by all those who are on the look-out for a well-built medium-powered car at a moderate figure. In addition to this type of chassis, two other models are produced for 1912, a 12–15-h.p. and a 20–30-h.p. In general design, however, they are so much alike that a description of the 15–20-h.p. chassis may be taken as applying also to the two other types; the only difference consisting in the fact that the chassis are lighter or stronger in proportion to the power output of their engines.

We have not yet had an opportunity for testing Ivor cars under ordinary running conditions, but judging by the chassis which we have examined, there is every reason to believe that they are likely to prove successful in the hands of private owners. The most casual observer cannot help being impressed by the very liberal proportions of the frame work, which is of the usual pressed steel type, and forms a very rigid foundation for the motor and the transmission system.

The chassis as a whole is assembled, that is to say that the various units that go to make up the complete chassis are not all produced in the works from which the car is finally turned out. They have been manufactured to the design of Messrs. Ivor Motors, Ltd., by a number of engineering firms of high repute, who specialise in the production of axles, frames, engines, &c. It therefore stands to reason that provided the component parts are made by reputable firms, the car when assembled represents a sound engineering job in which only the best materials and high-class workmanship are to be found. The Ivor chassis is an excellent example of the application of this theory, and that it should be so is not surprising, if it is considered that most of the vital parts of the chassis, the whole of the transmission, for instance, have been manufactured in the works of Messrs. Malicet and Blin, whose products have long enjoyed an enviable reputation for their quality. English manufacturers, however, have also contributed their share towards the chassis; its most characteristic external feature, the radiator, being produced by Messrs. Lamplough, of Willesden.

On the whole the design follows approved lines. Engine and gear-box are bolted to a separate underframe

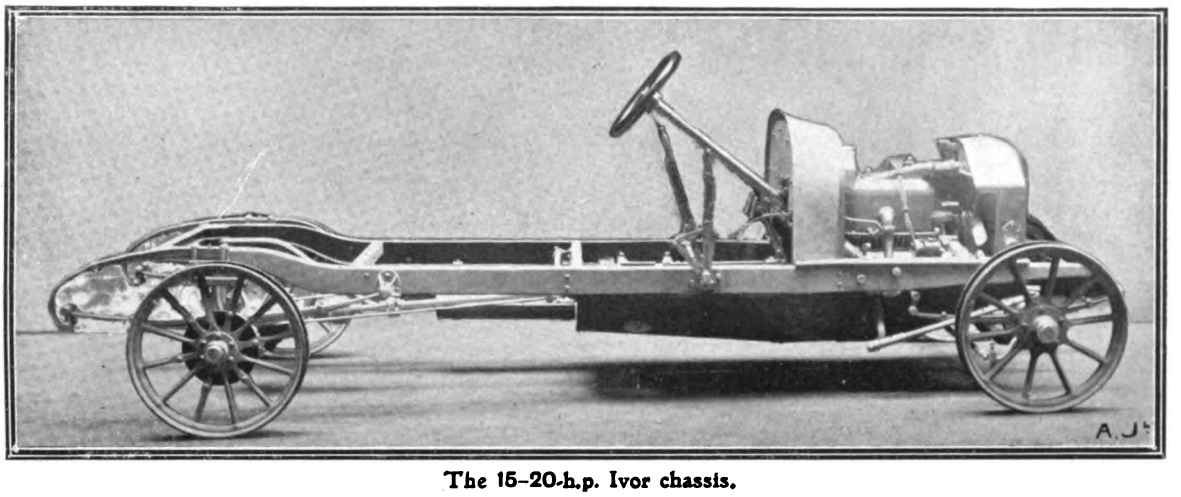
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of substantial design. The engine, made by Ballot, is of the modern four-cylinder monoblock type. As can be gathered from our illustrations, it is a particularly neat and clean engineering job, and accessible in every part. Inlet and exhaust passages are cast together with the cylinders, and the valves, which are placed on one side, and boxed in by a cover-plate, are easily accessible owing to the absence of piping or other obstructions. Cooling is effected by natural water circulation, and the action of the highly original and smart radiator is materially assisted by a high-speed fan. The very simple yet efficient adjustment for the fan-belt forms the subject of the first of our sketches, and needs no further explanation. The accessibility of all the joints in the water circulation, and the very neat clips employed there, are also features that will be appreciated by the man who looks after the car. Engine lubrication is by forced feed, the oil is taken from the sump in the lower half of the engine base, pumped up to a small tank on the engine side of the dashboard, whence it reaches the main bearings of the crank-shaft, after doing service here it is caught by spoons attached to the big-end bearings and splashed up to gudgeon pins and cylinder walls. The oil pump is driven off the rear end of the cam-shaft, and in this position—close up to the fly-wheel—would not be very accessible were it not for the peculiar way of bolting it on which is shown in the third of our sketches. After undoing the pipe-unions and slackening back the two holding down nuts the pump can be revolved and withdrawn sideways for inspection or cleaning purposes.

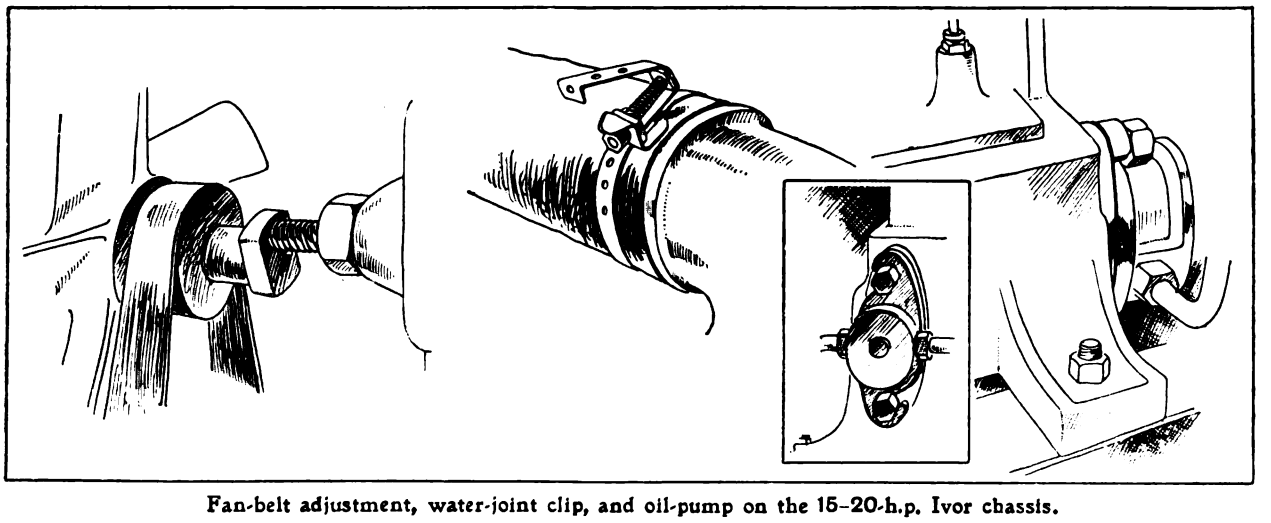
A Zenith carburettor, gravity fed from the petrol tank under the scuttle dash, supplies the explosive mixture, while a Bosch DU 4 magneto, gear driven and accessibly placed on the off side of the engine, supplies the spark for the ignition. The firing point is not variable.

A Hele-Shaw clutch is used for transmitting the engine power to the gear-box; it is provided with a clutch stop, and a flexible joint embodying a number of buffer springs is interposed between the clutch and gear shafts.

Four speeds forward and a reverse are provided in the gear-box, which consists of an unsplit casting and is of very liberal dimensions. The gears are controlled on the gate system and the shafts run on ball bearings. Specially low gearing has been employed for the counter shaft in order to minimise noise from this source when running on the direct top-speed. The universal joints on either end of the propeller-shaft, which is not enclosed, are protected by what appear to us to be quite admirable covers. These covers are manufactured in one piece from a specially prepared kind of rubber, for which it is claimed that it offers considerable resistance to the disintegrating influence of oil and grease. They are held in



The 15-20-h.p. Ivor chassis.



Fan-belt adjustment, water-joint clip, and oil-pump on the 15-20-h.p. Ivor chassis.

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position by well-made metal clips similar to those used on the water joints of the engine. On previous occasions we have pointed out in the pages of the AUTO. the great importance of really grease-proof covers for the efficient lubrication of universal joints, which plays a more important part in the efficiency of the transmission and the smooth running of a car than the average motorist imagines. We took particular care to examine the universal joint covers of an Ivor car that had been on the road for some considerable time, and we found them quite tight and showing no sign of leakage.

Looking casually at the back axle, which is of the well-known MaB type, you would think that it contains the usual kind of bevel-drive, but close investigation shows that this is not the case, for a Humphries' gear is used instead. There is much food for reflection in this, for it is the first time, we believe, that this form of gearing has been fitted as standard to a car produced on commercial lines, if we except the small number of cars that were equipped with this gear by its ingenious inventor. Messrs. Malicet and Blin have acquired the French rights for this English invention, which, as our readers will recollect, attracted a considerable amount of attention when it was first shown at Olympia a few years ago. At the moment, it is to say the least, a very happy idea to re-introduce it at a time when the opinions of designers are divided between worm and bevel drive, as the Humphries' gear claims to combine the efficiency of the one with the silence of the other.

All brakes are of the internal expanding type, and like the rest of the chassis are large and well constructed, so that they combine smooth but firm action with good wearing qualities. Three-quarter elliptic rear springs and semi-elliptic springs in front, fitted with well lubricated shackle-pins, ensure a comfortable riding.

Something entirely new, and quite out of the ordinary, is provided in the steering-gear, which is so interesting that it may well form the subject of a special article. It is a kind of modified worm and nut steering, which is really irreversible, and wear can be taken up by simply tightening a collar on the outside of the steering-box. We shall have to say more on this subject after we have had an opportunity of testing its qualities during an extensive trial run, but it seems to us to be well thought out, and substantially built in such a way that no shock from the road wheels can reach the driver's hands.

All round, the chassis shows a considerable amount of attention to detail; the filler openings for petrol, water, and oil are placed under the bonnet, which saves the mess from drippings. The lines of the tapered bonnet, and the graceful curve of the scuttle dash also give the coachbuilder plenty of scope.

The price of the chassis complete, with wooden wheels and 815 by 105 mm. tyres, has been fixed at £270, and considering the substantial design, and high grade materials employed in its construction, is distinctly moderate.



A South London Inter-Team Trial between the Woolwich, Plumstead, Streatham, and District Clubs last Saturday.—The rendezvous at the Crown Inn, Leaves Green, in Kent, a popular meeting point for South London motor cyclists.

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ANOTHER UNIQUE CADILLAC TRIAL.

IN 1908 the motoring world was startled by the remarkable standardisation tests to which three Cadillac cars were subjected, and which was carried through so successfully that it was considered by the R.A.C. to be the most meritorious performance of the whole year and awarded the Dewar Trophy.

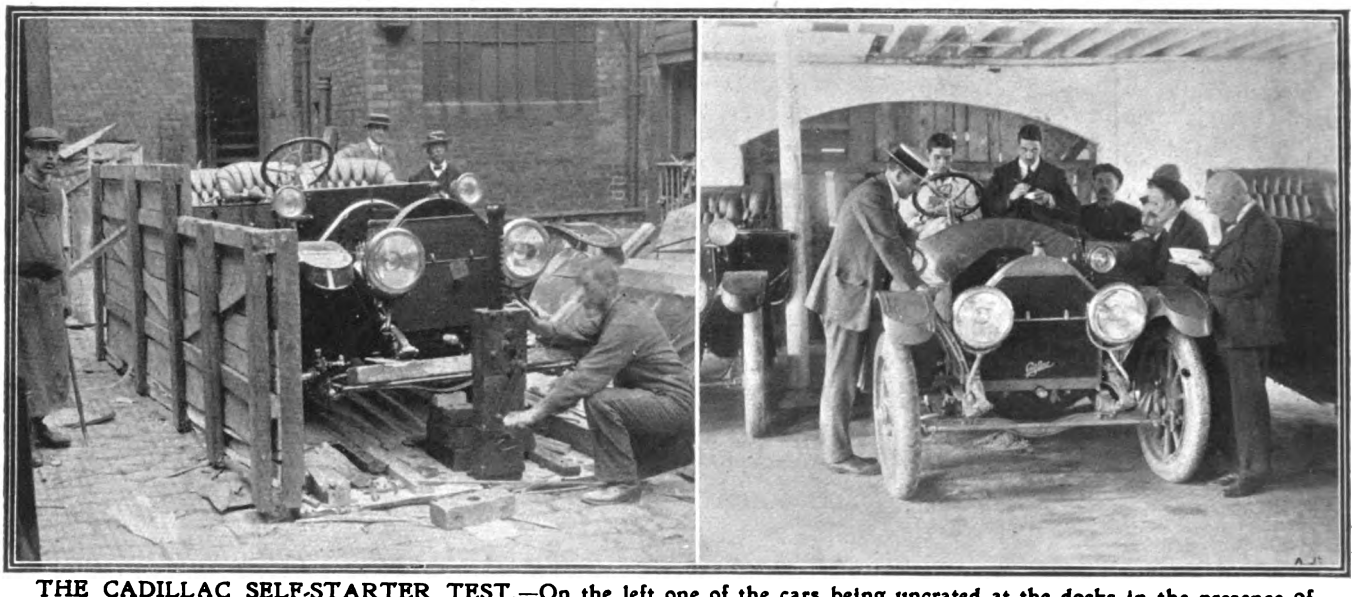
Now Mr. F. S. Bennett, who guides the destinies of Cadillac cars in this country, and who was responsible for this trial has devised another highly original and thorough test for these cars, which relates more particularly to the well-known self-starting, lighting, and ignition system on Cadillac cars, and which is being carried out entirely under R.A.C. observation.

The first part of the test, calculated to demonstrate the capabilities of the self-starter, was gone through last Friday and Saturday. For this purpose the officials of the R.A.C. were invited to select three cars from the stock of Messrs. F. S. Bennett, Ltd., which at the time comprised fifteen complete cars. Some of these were at the showrooms of the company, at 219, Shaftesbury Avenue, some were at the shippers warehouse, and yet others were still at the docks in their crates just as they had arrived from their country of origin. The method of choice of the R.A.C. rested entirely with their officials, who called at the Cadillac showrooms on Friday morning and informed Messrs. F. S. Bennett, Ltd., that the Committee of the Club had selected three of the cars that were standing at the docks.

Mr. Bennett, with his assistants and the R.A.C. Observer, Mr. Duncan, then adjourned to the docks, where the three cars were at once uncrated, had their tyres fitted and the tanks filled up. Their self-starters were then equipped with batteries and, be it said at once, they all three started straight away without a falter. From the docks the cars were driven to the premises of Messrs. F. S. Bennett, Ltd., in Shaftesbury Avenue, and the engine of each car was then started 1,000 times by means of the self-starter, which worked perfectly right through the test, as will be certified by the R.A.C. in due course.

During the whole time the test was in progress the engines of the three cars ran perfectly, and neither smoked nor heated up, which shows that these cars are turned out from the factory with perfectly tuned engines, and that no special manipulation is necessary after they arrive in this country. It should be noted that part of the test took place on Friday and the other part on Saturday morning, and that the cars were locked up for $12\frac{1}{2}$ hours during the night. This, combined with the fact that when the three cars were first unpacked at the docks their engines had been standing still, in fact had not been touched for just 80 days, to a great extent increased the severity and genuineness of the whole trial upon which Messrs. F. S. Bennett, Ltd., are to be most heartily congratulated.

This highly successful test of the self-starting apparatus is shortly to be followed by a road trial over a distance of 2,000 miles, during which the electric lighting outfit, and the ignition system, which derive their current from the same source as the self-starter, will be subjected to a searching test under touring conditions. Needless to say this test will also take place under R.A.C. observation. Particulars of the road trial will be published in the columns of the AUTO. as soon as the date and the conditions are made known by the R.A.C.



THE CADILLAC SELF-STARTER TEST.—On the left one of the cars being uncrated at the docks in the presence of the R.A.C. observer, and on the right the starting test in operation in the presence of—reading from left to right—Messrs. F. S. Bennett, W. V. Jolly (works manager), B. Cosway (demonstrator), W. E. Bollins (mechanic), Taylor (mechanic), S. Soanes (electrician), Mr. Duncan (R.A.C. observer).

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Map of Bournemouth.

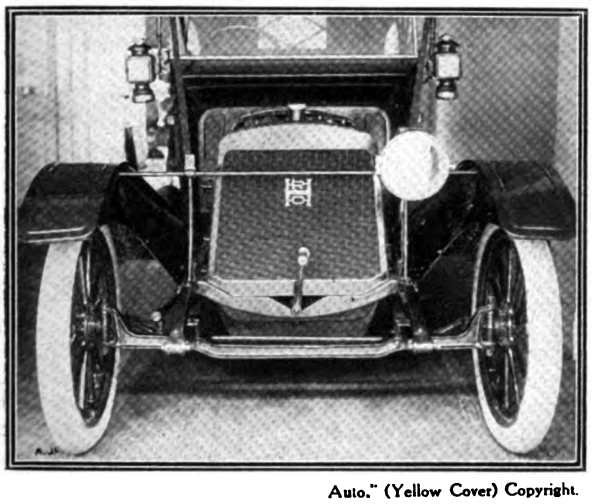
THE map of Bournemouth, used to illustrate the whereabouts of the Imperial Motor Works on p. 829 of the AUTO., had its origin in the 1912 edition of the Michelin Guide to the British Isles, and is an example of one of many of the exceedingly useful town plans with which this motorists' companion is illustrated. As a guide, it should be in everyone's possession, for no motorist, be he never so well acquainted with the country, can say when it may not afford him invaluable service.

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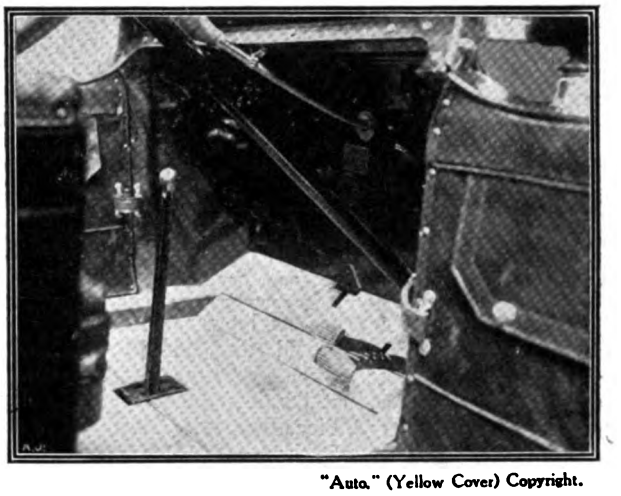
POINTS FOR THE BUYER.

MOST of the cheap American cars that are enjoying so much popularity in this country at the present moment are equipped with engines of considerably larger cylinder diameter than the popular type of European car. This fact is considered by some people an advantage on account of the higher engine power, which renders the car very easy to handle for the beginner; by others, however, who have a more extensive experience with the running of motor cars and particularly with the cost of upkeep, it is looked upon in a somewhat different light. In the R.C.H. car we have come across an American car, which more than others that hail from across the water conforms, as far as engine dimensions are concerned, to what we are used to find in our home product, and for this reason outside any other the R.C.H. merits the attention of the intending purchaser.



"Auto." (Yellow Cover) Copyright.

Front view of the R.C.H. car.



"Auto." (Yellow Cover) Copyright.

Central control of the R.C.H. car.

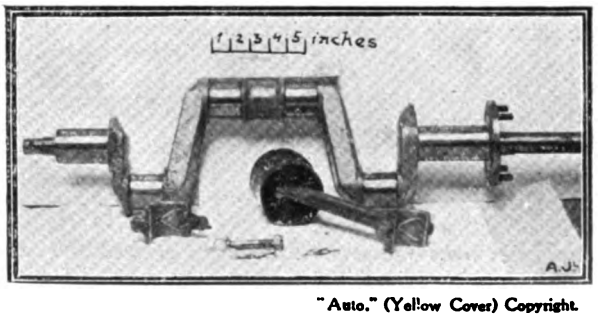
It is driven by a four cylinder monobloc engine of 83 mm. bore by 127 mm. stroke, and in outward appearance not less than in its internal dimensions resembles a type familiar to all of us as European standard practice. The engine is equipped with a Bosch H. T. Magneto accessibly placed on its near side. Those parts of the engine, however, that are out of sight in this case are the most interesting. The crank-shaft, for instance, runs in two large bearings, but in order to make any whip impossible, it has been made enormously strong. Indeed we remember many engines of considerably higher power that had much smaller crank-shafts. In our illustration we have added a scale from which, by comparison, the actual size or the shaft can be gathered.

Connecting-rods and gudgeon-pins are also worthy of note not merely on account of the very ample size of the big-end bearing, but more so for their great strength combined with lightness, and especially on account of the peculiar, and, to our mind excellent, way of fastening the gudgeon-pin. This pin is not in any way fixed to the piston as is the usual practice, but has its bearings in the two piston bosses on either side of the little-end of the connecting-rod. The little-end is split so as to form a clamp, and the gudgeon-pin, which has a grove turned into its central part, is held fast by this clamp and the locking bolt which passes through the grove in the pin. The length of the gudgeon-pin is somewhat less than the diameter of the piston so that a small cavity is formed on either side of it, which quickly fills with oil from the cylinder walls and thus keeps the bearings well lubricated.

A good feature of the big-end bearing besides its very ample dimensions is the fact that a number of packing pieces, shown in our illustration, are interposed between the two halves, so that by simply taking out one or more of these pieces, any slack in the bearing can be taken up. As the lower half of the base chamber can be detached without interfering with the crank bearings, the job of "taking up the big-ends" need not necessarily be executed by skilled mechanics, resulting in a saving of the repair bill.

In the matter of control, the R.C.H. car differs from the orthodox inasmuch as the hand brake lever has entirely been dispensed with. This fact and the placing of the change-speed lever in the centre, to the left of the driver, allows a perfectly unobstructed entrance to the driver's seat from the off side.

The spare tyre is carried at the back. Both brakes are actuated by pedals of which there are the usual three. The pedal on the left works both the clutch and the foot-brake, while the one on the right, which, as can be seen from the photo, is provided with a rack, serves the emergency brake. A smaller pedal, situated to the right



"Auto." (Yellow Cover) Copyright.

Crank-shaft, piston, and connecting-rod of the R.C.H. car.

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of the latter, but not visible in the illustration, is an accelerator.

In the matter of the bodywork the R.C.H. is not less well equipped, indeed it makes one wonder how it is possible to provide so much for the money. The outline of the whole car is very pleasing, the interior is well upholstered in leather and the seats are very comfortable.

There are a number of really good ideas carried into practice on the R.C.H. body-work, which show that those responsible for the design have a very keen conception of the convenience and comfort of the driver. The horn, for instance, is painted black and placed under the bonnet above the engine, where it need not be polished so frequently, in fact an occasional wiping with a damp rag is sufficient to keep it clean. The head light brackets also merit attention and form the subject of our first illustration. The lamps are placed on upright pillars very much like a bicycle lamp is fastened to its bracket. The two uprights are connected by a cross bar extending under the mudguards, an arrangement which prevents excessive vibration of the lamps. At the back of the uprights small rings are provided to which the clips of the hood straps can be fastened. The higher position which this arrangement affords for the headlights is much to be preferred to the usual low level of the lamps, as by reason of being high up they are less likely to be damaged.

Last, but by no means least, spare parts are very cheap and readily obtainable from the agents. We take the following from the price list :—

	£	s.	d.
Crank-shaft ready machined	3	15	0
Four-cylinder monobloc casting ready machined ...	6	0	0
Piston with rings	0	7	6
Clutch spring	0	0	6

Prices like the above should provide food for thought to many interested people.

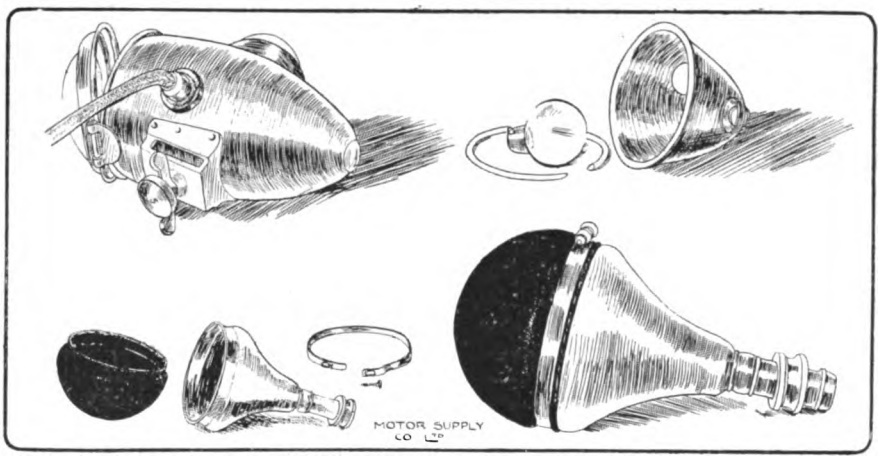
R.C.H. cars are obtainable, fitted with various types of bodywork, and the prices range from £170, for the complete two-seater, upwards.

Messrs. Byrom and Co., of 85, Great Portland Street, London, W., are the concessionaire for the British Isles.

"N.S.C. 16."

ACCESSORIES OF THE WEEK.

SOME people imagine that as long as some light is obtained any old lamp will do, but why sacrifice appearance when there is such a very neat and powerful lamp on the market as that just introduced by the Motor Supply Co., Ltd., of 136, Piccadilly, W. The illustration shows one of a set of three electric lamps, specially designed for use with torpedo bodies. The external appearance of these lamps speaks for itself, and when it is added that the strength of construction and the amount and method of distribution of the light given are on a par with the appearance it may safely be said that this set of lamps is well worth the three guineas charged for them. The set comprises two side lamps and a tail lamp similar to that shown. In the tail lamp, the bulb is carried in a central position so that in addition to illuminating the red lens a bright beam is cast on the number-plate and a ray is also projected through a tiny bull's-eye bulb to the off-side of the road to assure the driver that the rear lamp is burning.



THE second of the Motor Supply Co.'s innovations here illustrated is the new horn bulb, which it will be noted has only about one third of the rubber usual in these articles. It is very easy to operate a horn with one of these bulbs, as the end of the bulb can be pressed or punched in against the brass foundation without that awkward folding up or strangling so frequent with an ordinary bulb. The rubber part can very easily be detached as shown in the illustration and can be replaced cheaply if desired. Fittings are made for all standard threads, and the price of the complete article is 6*s.* 6*d.*

Automobile Engineers and the Motor Ship.

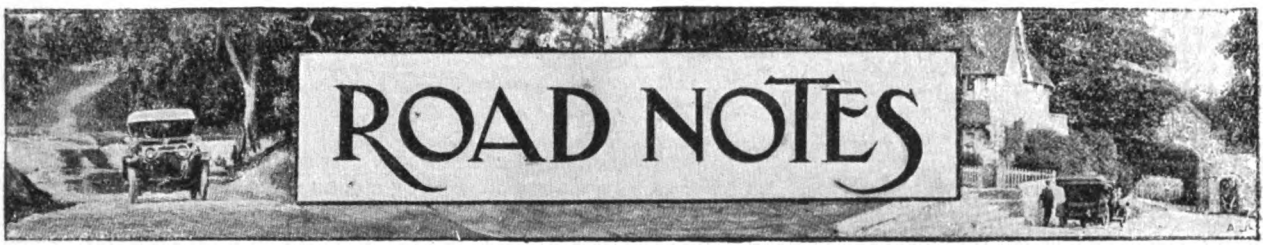
ON Wednesday week a party of members of the Institution of Automobile Engineers paid an interesting visit to the 2,500 h.p. motor ship "Selandia" belonging to the East Asiatic Co.

Inquiries from the engineering staff elicited the fact that the engines had given the utmost satisfaction throughout the whole of her 21,000-mile voyage to Bangkok and back, and that no alterations thereto had been found to be necessary. Experience showed that only trifling alterations in some of the auxiliaries would be desirable.

It was understood that the consumption throughout the voyage averaged 9 tons per day, and the total engine room staff required for looking after the two sets of engines and the auxiliaries amounted to ten men and three boys, the latter being employed only for cleaning purposes.

The ship carries about 9,000 tons of cargo and about 20 passengers, for whom very fine accommodation is arranged on the bridge deck.

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COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Foundations are being laid from Hartford Station to Hartford Church, a distance of nearly half-a-mile; will last about a month.

Members are requested to slow through Northwich and Altrincham.

GREAT NORTH ROAD.—Timing is likely to be in hand between Newark and Lincoln.

Members are requested to slow through Tempsford. Hatfield, 10-mile limit should be observed.

LANCASHIRE.—Members are requested to slow through Garstang.

Lancaster–Keighley Road.—Members are requested to drive slowly through High and Low Bentham.

YORKSHIRE.—*Leeds District.*—Timing still in hand at Moortown, Leeds; through the 10-mile limit in Burley-in-Wharfdale and Ilkley; ¼ mile west of Malton from the first milestone.

A control is also being worked between Arthington and Pool, on the Otley–Boston Spa road, and in Chapeltown Road, Leeds (within the Borough), from Reginald Terrace to St. Mary's Road.

NEWCASTLE-ON-TYNE. — *Town Moor, Newcast'e.* — Measured distance between North Road Police Station and the Blue House Police Station.

EAST.

NORFOLK.— *London–Royston Road.*—From Pampisford Hall Gate to the Railway Cottages will be closed until further notice, and traffic must proceed *via* Babraham, notices are on the cross roads.

SOUTH.

BATH ROAD.—Under repair between Twyford and Sonning cross roads, full width also from Sonning cross roads to Reading, and members are advised to drive slowly at night; road very bad between Sonning railway bridge and tram terminus. Members are advised to drive slowly through Maidenhead. Timing at Harlington, between Twyford and Wargrave, and between Wargrave and Henley.

BRIGHTON ROAD.—Under repair at Gatton Point corner to Redhill, also at Merstham round the Feathers Hotel corner there are some very bad holes. Tarring and rolling on Reigate Hill towards the station, and roller between Reigate and Redhill, Povey Cross roads and Crawley, between Angel public house, Reigate, and Earlswood. Sewerage pipes being laid through Earlswood village, left of Redhill half-width.

KENT.—Timing at Bexley Heath, Shooter's Hill, and Blackheath.

Members are requested to drive slowly through Maidstone.

LONDON DISTRICT.—Control between the Redcliffe Gardens and the Boltons, Earl's Court Road, also on the Victoria Embankment between Westminster and Tate's Art Gallery. Timing likely to be in force in and near Golder's Green; Mitcham; Morden; Sutton; Banstead: through Croydon to Purley; between Wimbledon and Ewell; between Hounslow and Staines; Kingston Hill; Putney Heath; Harlesden; Deptford; Camberwell; Maida Vale: Highgate; Holloway; High Street, Lewisham; also between Sudbury and Harrow Hill.

OXFORD HILL. — Control working in Denham's Avenue off Norman's Hill.

Tarring 14 miles N. of Oxford, near village of Enstone, half-width.

SOUTHAMPTON DISTRICT.—*Frimley–York Town Road.*—Control likely to be working here.

Millbrook Road.—Still closed to traffic, alternative route *via* Paynes Road, Howard and Archer Roads, to Avenue for London cars, and *via* Waterloo Road for Southampton cars.

SURREY.—Control likely to be working at South Godstone Railway Station; between Kingston and Esher; on Kingston-Leatherhead road; and between Ewell and Epsom.

Chertsey.—Control likely to be working in Chertsey Lane, Thorpe.

Eastbourne Road.—Timing likely to be in force in and near Kenley and Whyteleafe, also between Dorking and Westcott at Milton Heath.

High Street, Purley.—Under repair and all traffic has to proceed *via* Purley Corner.

SUSSEX.—Controls likely to be working along Grand Parade, Eastbourne and between Lewes and Brighton.

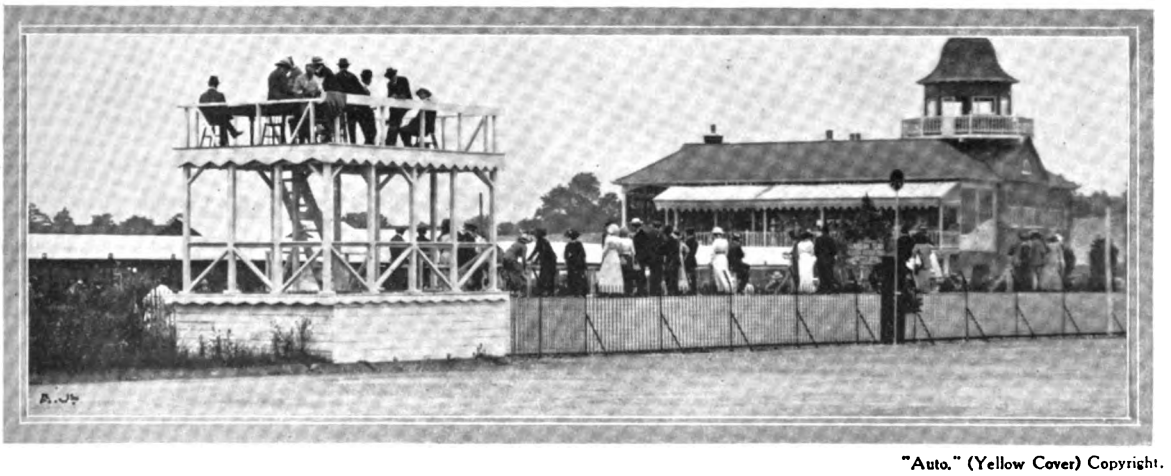
WEST.

CORNWALL.—*Torpoint–Liskeard Road.*—Members are requested to drive with caution through here.

MIDLANDS.

COVENTRY ROAD.—Members are requested to slow through Redbourne, Fenny Stratford and Stony Stratford. Special caution necessary at Weedon.

DERBYSHIRE.—*Derby–Loughborough Road.*—Roller at work re-metalling full width of road, 1½ miles north of Kegworth, lighted at night. Care is needed at Ashby-Nottingham cross-roads and at Cavendish Bridge.



"Auto." (Yellow Cover) Copyright.

THE ELEVATION OF THE FOURTH ESTATE.—The new Press Stand at Brooklands, which was appreciated for the first time at the July Meeting on Saturday week.

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LONDON TO THE COAST "AUTO." KEY-MAP.

ANOTHER AUTO. double-page key-map appears this week, and the subject thereof is the country from London to the South Coast and for a radius of 50 miles or more on the east, north and west. To motorists in the metropolis this map should be of considerable assistance showing as it does at a glance all the principal highways that radiate from London as a centre.

This map is one of a series that have been constructed with reference to those that have already appeared and those about to follow, and with respect to the former we draw attention to the fact that the centre of the present map is blank for a radius of ten miles. The missing roads have already formed the subject of a key-map, which was published in the AUTO. of June 15th, and the points at which the roads in the present map begin correspond to the places where the roads in the AUTO. key-map of London exits left off.

In order that there may be no possible misunderstanding as to the purpose and scope of the AUTO. key-maps, let us again emphasize the fact that they are intended to be used in conjunction with the Ordnance Survey. They are, it is true, sufficient in themselves for those who already know the country fairly well and merely need a reminder of places that each road passes through, but more particularly these key-maps have been compiled to be of assistance to new motorists who are as yet unacquainted with the art of selecting their routes and finding their way. When one is motoring distance passes very quickly, and on the whole the surest way of satisfactorily pursuing a journey is to make quite certain of the places that are necessary to be passed through and then see that you keep them by due inquiry. Few motorists will be bothered to stop and ascertain by the aid of a map whether some name on a signpost is or is not on the line of march, and those who do are often led astray thereby because the possibilities of making a mistake when reading the map are sometimes almost as great as attend the mere chancing to luck by going ahead without any sort of consultation. Even on such beautifully prepared maps as the Ordnance Survey, where the detail is not only accurate but wonderfully clear, it is quite easy to suppose that it is necessary to go through some town or village that in reality lies off the highway. This, of course, only happens when the map reading is done in a hurry, but in general the use of a map on the car is an inconvenience to those not practised in the art of map reading—which is so much more of an art than some people imagine—that we have long been convinced that some key or guide to the principal highways was eminently desirable. Many maps have been published with the main roads coloured in some distinctive tone, but one and all that have ever come before our notice fail quite to fulfil the purpose we seek to achieve with the AUTO. key-maps, because the coloured roads are so very numerous.

A glance at the accompanying map will suffice to show that the roads have been selected on a definite system that is primarily based on the requirements of motorists who start from London. Now, any standard detail map is based on no such hypothetical starting-point. It is equally useful to all motorists in all parts, because it shows all roads in all directions. Here in the AUTO. Key-map of London to the Coast, we see only roads that radiate from London, and with the exception of two that we are about to mention, no other roads are shown at all. These two roads are circuit roads that enable the motorist to branch across from one main road to the other well outside the metropolis. There are many cross roads that do this, but in this instance our object has been to show one in particular that the motorist can follow with the certainty of making a connection and with fair ease in finding his way. On the northern side there is the circuit road running through Rickmansworth, Watford, St. Albans and Hatfield. This links up as far south-west as Virginia Water, and on the north-east it joins up through Ware and Bishop's Stortford to a main road running to Colchester, which forms, in our opinion, the most attractive route to the east coast for Londoners who have half-an-hour or an hour extra to spare over the journey. The Finchley Road exit from London is so infinitely preferable to any other on the north side that it is well worth while running to Hatfield and then striking off across country down the turning at the side of the Red Lion, even if it does take somewhat longer. Through Hertford, Ware, and Little Hadham is a route that can soon be learned, while once on the Bishop's Stortford–Braintree Road there is nothing but good going through very attractive country.

On the south, that wonderful east and west highway from Guildford through Reigate, Redhill, and Godstone to Maidstone is of course indicated, although the knowing motorist has many another way of getting across country through the Caterham Valley.

For the rest, there are practically no roads on the map that are not in some sense radial to London. Distinction has been made in the thickness of the lines employed, but this is not to indicate the relative quality of the road surface so much as to assist the eye in selecting the route required. In some places truly, the distinction between the lines does not indicate the better road to follow. As usual, we are preparing separate copies of this map on paper, linen, and on plaques. Those who have not yet seen the AUTO. plaques would do well to spend a modest half-crown in purchasing one, for the system is something new in the matter of permanent reproduction, and has a considerable interest on that account alone.

AUTO. key-maps already published include: London Exits, Golf Courses Near London, Classic Golf Courses of England.



A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Goodwood Races Car Enclosure for Members. — The Association has arranged for a special car enclosure for members attending the Goodwood Races (July 30th–August 2nd inclusive). This enclosure is situated almost opposite the entrance to the grand stand. The following charges for admission have been fixed:

Per day.—Cars, 6*s.*; motor cycles, 1*s.*; motor cycles with side-cars, 2*s.* Four days.—1 guinea, 3*s.* and 6*s.* respectively. Tickets at Fanum House, Whitcomb Street, Coventry Street, W., or City offices, Guildhall Annexe, Guildhall Yard, E.C.

Over 50,000 Members.—In January last, the membership of the Association stood at 30,000. During the past six months, over 12,000 motorists have joined, and at the beginning of this week the total membership was nearly 51,000. This number includes over 13,500 motor cyclists members.

Special Road Notice.—Motorists are advised not to use "Dalton-gate" at Dalton-in-Furness, as the main road into and through Ulverstone. The more recently constructed and wider "Station Road" is safer, and is not so frequented by children.

Speed Limit.—The Devon County Council has applied for an order prohibiting the use of motor vehicles on Vicarage Hill, Branscombe. The Association is investigating this matter, and members acquainted with the highway are invited to commnnicate their views to the Secretary as soon as possible.

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By VICTOR HART.

A Wonderful Performance.

UP the test hill at Brooklands track, last Saturday afternoon, Mr. S. L. Bailey achieved what I consider to be one of the most wonderful performances of the 1912 season, on the road or track. The upper part of the test hill has an actual gradient of 1 in 4, and Mr. Bailey driving a twin-cylinder Douglas, with engine dimensions bringing it just inside 350 cc. capacity, covered the length of the hill at a pace equal to 33·36 miles per hour. The performance is authenticated by the Brooklands authorities, and having been timed electrically, there can be no question of its correctness. I should imagine this speed constitutes a record for any type of motor car or motor cycle, as regards this hill, whilst still more creditable to driver and machine was the fact that other attempts the same afternoon with much larger capacity engine were inferior to the Douglas performance. In the 500 cc. class, the best speed was 28·59 m.p.h. and in the 750 cc. and 1,000 cc. classes the best speed was 32·46 m.p.h. Bailey also won the 5-laps handicap and second prize in the Junior T.T. class 5-laps scratch race, only losing premier position by $\frac{3}{5}$th of a second.

The 1913 T.T. Races.

Whatever the Manufacturers' Union may officially decide upon, the T.T. races will certainly be continued in the Isle of Man in 1913, and subject to the consent of the Governor and House of Keys, the events will take place over the same course. The suggested dates are Friday 6th June and Monday 9th June, and it is proposed to double the distance of the Senior race by continuing over the two days and to run the Junior race concurrently. This development should make the races more interesting than ever, and will afford a splendid test of machines and physical fitness of the drivers, for no untrained man could stand the hard work of racing over rough roads and piling up the distance of 375 miles. Both the 1911 and 1912 events have conclusively proved that the Junior machines—those with engines below 350 cc.—can as well undergo running 187½ miles each day as can the Senior 500 cc. class. This was demonstrated this year by Mr. E. Kickham, who gained second place in the Junior race on the Friday, and upon the same machine finished 17th in the Senior race on the succeeding Monday.

Whilst in the Island, I interviewed several of the Junior race drivers concerning the idea of a two-days race, and also whether they would be agreeable to cover an extra circuit each day, so bringing the total distance up to that set for the Senior race. Every man whose opinion I was able to obtain was enthusiastic, consequently I have suggested to the A.C.U. that the 1913 Junior race shall be for 375 miles instead of 300 miles. If it is possible to arrange the races upon two consecutive days interest would be better sustained, but this will depend upon the wishes of the Isle of Man people, and although apparently a logical arrangement, it might prevent many hundreds of motor cyclists going across if the events were held in the middle of the week. The Saturday markets preclude the roads being closed to traffic on that day, hence the only alternative are mid-week days or Friday and Monday. No alteration will be made in the cylinder capacities for next year, and with these important details already settled officially, manufacturers have a full twelvemonth to mature their plans.

Hand-Timing to Tenths of a Second.

Reading the reports of the Olympic Games at Stockholm one could not help but notice the frequent statements of times being recorded to tenths of a second. Writing elsewhere about 6 years ago concerning motor car racing —this was prior to the installation of Colonel Holden's electrical timing apparatus at Brooklands track—I expressed the view that hand-timing to fifths of a second did not accurately represent the possible differences of speed between two cars.

Even the comparatively slow pace of a man running for a 120-yards sprint cannot be registered closely enough upon a chronograph with the seconds dial spaced only to fifths. Reports of athletic events frequently contain the word "inside evens," which means that a runner traversed 120 yards inside 10 seconds but outside 9$\frac{4}{5}$th seconds, and as present day instruments possessed by the majority of British and American timekeepers are only marked to fifths, the *actual* performance cannot be recorded.

The matter is of more importance when considered in relation to motor car and motor cycle timing, away from the facilities possessed by Brooklands. At hill-climbs, and such events as the sand racing at Saltburn or the road trials in the Duke of Portland's park at Clipstone, two vehicles may be returned by the timekeepers as equal, yet it is possible for one to be really faster than the other, without the chronographs showing the difference. Speeds of 60 miles per hour are slow nowadays, and at that pace a machine traverses a fraction more than 17 feet 7 inches in every fifth of a second. Running together, the faster of the two vehicles would optically demonstrate its superiority, but running separately against the chronograph, a difference of say 8 feet could not be shown with hand timing, yet the timekeepers are right in announcing equally good times for the two machines, as recorded by present methods of splitting seconds.

Split seconds chronographs, as generally constructed, are so scaled that the seconds hands occupy one minute in traversing the circumference of the dial, consequently it is impossible to clearly show finer gradations than fifths. A 30-seconds dial could be just as easily marked to tenths, and if still finer differences are ever required, a 15-seconds dial could be split to 20ths of a second. As

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concerns the ability of well-known timekeepers to split to this fairly close accuracy, there is not the slightest doubt, and without professing expertness in the fine art of timing, I have been able to split to 40ths upon a German machine which was designed 20 years ago to test the personal equation of astronomers. I hardly suppose men who own Kew Observatory "A" certificate instruments would favour the notion, because it would obviously involve re-building existing chronographs or the purchase of new ones.



Notes from New York

DEFINITE arrangements have now been made for the manufacturing rights of the German Daimler (Mercedes) firm to be divided between two American concerns. The General Vehicle Co., an off-shoot of the great General Electric Co., have secured the right to make the industrial vehicles, while an Eastern Syndicate, which is closely connected with the Daimler Import Co., which handles the Mercedes cars in the States, is making arrangements to build the pleasure cars in America.

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Although the figures for the exports during May have been somewhat tardy in making their appearance, they are very good, and show that the trade was practically double as compared with May, 1911. Then 1,466 cars valued at $1,513,547 were sent abroad, while last May the figures were 3,009 cars, valued $2,963,818. Canada, of course, headed the list of buyers with 1,109 cars, valued at $1,352,856 and Great Britain was second with 673 cars, valued at $465,722, while British Australasia was third with 445 cars, valued at $412,565. Great Britain's share was more than twice as much as last year, while Australasia was nearly four times as much. The only decrease being in the case of France, taking 63 cars at $48,980, which was $22,942 less than last year.

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The exportation of tyres showed a slight decrease, the value dropping down from $310,346 in May, 1911, as against $272,317 in May of this year. The figures regarding engines show that 571, valued at $67,627 were sent abroad during May. As these exports were not classified separately previous to last June, it is impossible to compare the previous year's figures. The average value of exported motors was $118.

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The figures regarding imports show that the number of cars coming in was 76, one more than in May last year, while the value increased from $158,046 to $165,759. France headed the list with 41 cars, valued at $95,965, while Great Britain and Italy each contributed 11 cars, the former valued at $28,324, while the latter's contribution amounted to $17,424.

• • •

The Summer Meeting in Detroit and the two-days cruise on Lake Huron of the Society of Automobile Engineers proved to be one of the most successful events in the history of the S.A.E. Standardisation was the topic which was most in evidence, and several sub-committees of the Standards Committee, which have been considering the various parts of the car, submitted reports and recommendations which were adopted by the meeting as "recommended practice." Among the speakers were Lord Montagu and Mr. R. W. A. Brewer. In recognition of the splendid work done during the past two years by the secretary and general manager, Mr. Coker Clarkson, a motor car is to be presented to him. The money has been collected, but at the time of the meeting the committee in charge had not reached a decision as to the make of the car to be purchased, and so Mr. Clarkson was presented with a toy motor car and told it would later be replaced by the real thing.

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The new by-law in New York forbidding the use of cut-outs came into operation on July 16th. It makes it unlawful for the exhaust gases from the engine of any motor vehicle to escape into the atmosphere without passing through a suitable muffler or silencer. The punishment for any offence under the by-law is a fine of $10 or imprisonment for not more than ten days.

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The Milwaukee Automobile Club is endeavouring to get the City Council to adopt a universal lighting law which will apply to moving vehicles only, as there is at present in force a regulation which compels standing vehicles to have at least one light visible in both directions. The club is also co-operating with the Wisconsin A.A. in an endeavour to get the State Legislature to pass a universal lighting law.

• • •

One of the New York State examiners of chauffeurs recently stated that he believes that eventually every applicant for a driver's licence will have to pass a road examination and show a certificate to the effect that the bearer is competent. He adds that motor cars are often driven by incompetent people without the slightest regard to the existing laws concerning the running of these vehicles.

• • •

Alas! the automobile is at fault again, and this time it is the millinery trade which it is bringing to the dogs. According to the President of the Millinery Travelling Men's Association, in his annual report, the falling off of trade in millinery is due to the modern motor car, with its attendant veil, donned by women autoists, because of damage the wind does to hats.

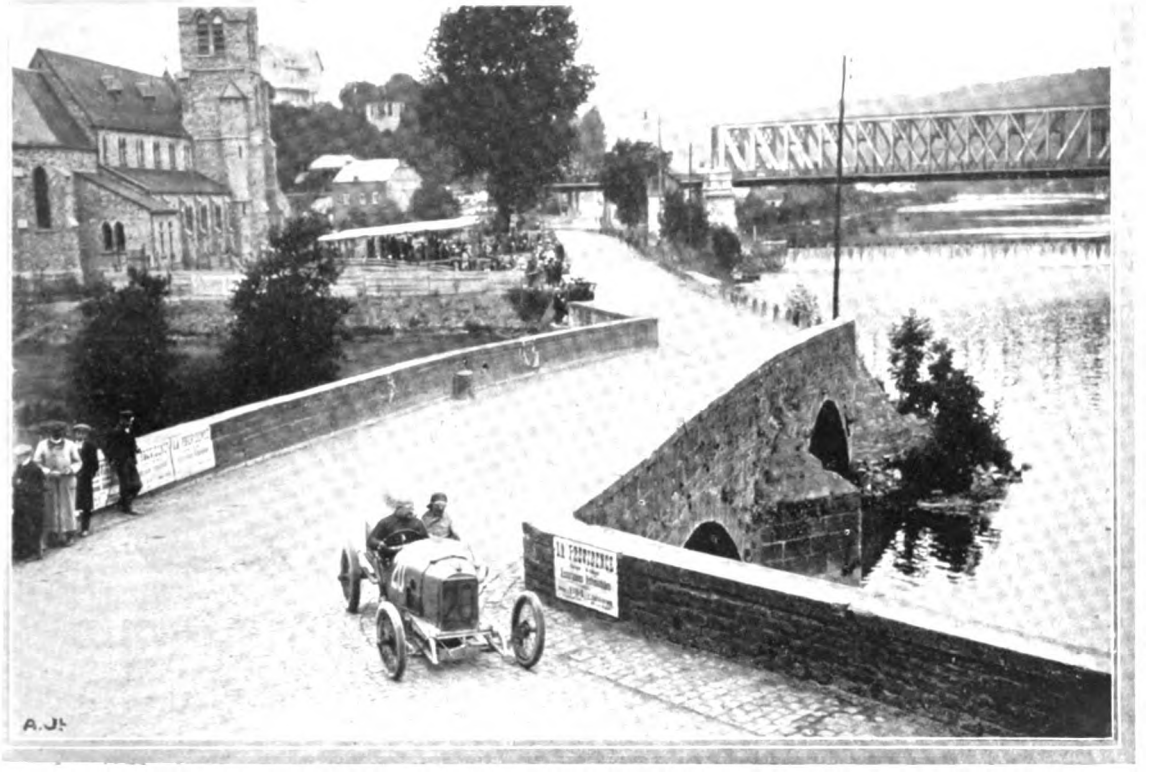
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A new car built in the West is something of an event, and so a little ceremony was necessary on the completion of the first Perfex car in a new factory at Los Angeles. The ceremony was performed by Mr. H. B. Gurley, Assistant Secretary of the Los Angeles Chamber of Commerce, who broke a bottle of Owen's river water over the radiator of the car saying the while "I christen thee 'Perfex' and welcome thee and thy builders into the fold of the many industrial institutions that now grace our fair southland."

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BELGIAN GRAND PRIX.—The general scene at the start for the Dinant Circuit. F. Opel, on his Opel car, just getting away.



THE BELGIAN GRAND PRIX.—Zuccarelli, on one of the Peugeot cars, crossing the Anseremme Bridge.

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The Belgian Grand Prix.

AFTER the success of the French Grand Prix races, the Grand Prix of the Belgian A.C. was a comparatively tame affair. Instead of being a race pure and simple, the event was more in the nature of a high-speed reliability trial. On each of the two days the competitors were set to cover a dozen laps of a 48-kilometre circuit, in which the main points were Dinant, Vignee, near Wanlin, and Beaurang. According to the cubical capacity of the cylinders, the cars had to be driven at a stipulated average speed, and the chief prize was to go to the team which deviated the least from the scheduled time. The following table gives these particulars of the principal cars in a convenient form for reference :—

Car.	Bore and stroke.	Cubic capacity. Litres.	Speed. m.p.h.
Minerva	80 × 125	2·6	38·0
Opel	70 × 135	2·1	35·3
Lion-Peugeot ...	78 × 156	3·0	40·0
Mercedes	100 × 140	4·4	44·4
Hermes	72·8 × 120	2·0	35·0
Germain	92 × 150	4·0	43·0
Sava...	82 × 140	3·0	40·0
F.A.B.	75 × 120	2·2	35·5
Schneider	82·5 × 140	3·0	40·0

At the start on Saturday morning at Anseremme, near Dinant, 26 cars were sent off, and at the end of the first day six of them had retired, while two more failed to re-start by Sunday morning. The first day showed five teams with equal scores, these being the Lion-Peugeot, Mercedes, Minerva, Opel, and Hermes, while the two Schneider cars, which were running individually, had full marks. Several of the competitors had made a practice of going round the course faster than the required speed, then stopping at a corner before the finishing line, where they waited until they could go on so that they could cross the line practically on time. In order to combat this the Committee made a regulation overnight that each competitor who made a round at a higher speed than that set would be penalised one point. To add to the difficulties of the drivers on the second day, they had not been running long when it commenced to rain, and the roads, which became very greasy, required most careful negotiation. One of the first incidents centred round Goux, whose car was damaged through his having to jam on the brakes very hard to avoid a spectator. Several of the teams lost marks either for going too slow or too fast, and at the end of the second day the Minerva and Hermes teams were the only ones which finished without loss of marks. The cup offered by the R.A.C. of Belgium was awarded to the Minerva team, while that of the Chambre Syndicale de l'Automobile went to Hermes, and both teams were placed *ex æquo* for the King's Cup.



NORTH MIDDLESEX M.C.C. OPEN TRIAL.—View at the start from the Old Gatehouse, Highgate, on Saturday for the run to Stratford-on-Avon and back.

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New Brooklands Records.

NEW records were set up in Class D at Brooklands on Wednesday of last week. Mr. H. Perrot, on a 15-h.p. Argyll, with sleeve-valve engine 80 mm. bore by 130 mm. stroke, beat the Long Record of ten laps from standing start, his average speed working out to 60·69 m.p.h., while Mr. C. L. E. Geach, on a Singer, secured the three Short Records. This latter car has a 4-cylinder engine, 80 mm. bore by 130 mm. stroke, and did the flying half-mile in 20·73 secs., the flying kilometre in 25·77 secs., and the flying mile in 41·6 secs., the speeds being 86·83, 86·80, and 86·54 m.p.h respectively.

Motor Cycle Racing at Brooklands.

SOME very good racing was seen at Brooklands on Saturday last when the B.M.C.R.C. held its fifth meeting. The programme was made up of five items, the first being time trials over the mile and kilometre, in which Harry Martin on a 2¾-h.p. Martin raised the flying mile record in the 350 mm. class to 67·85 m.p.h., and P. Brewster, on a 3½-h.p. Norton in the 500 cc. class, pushed up the mile record to 73·57 m.p.h. Five laps scratch race for junior machines was the next item, and the half dozen starters got away in good time. It resulted in a win for G. E. Stanley on a 2½-h.p. Singer at a speed of 69·4 m.p.h., with S. L. Bailey on a Douglas a very close second, and Woodman on a Humber third. Stanley also secured a win on his 3½-h.p. Singer in the Senior event, but this time he had an easy victory by well over a mile at a speed of 64·6 m.p.h. S. F. Garrett, on a Regal Precision, was second, and S. D. Timson, on a Rudge, third. An Allcomers' Handicap was the next on the list, and brought out cycle-cars and sidecars as well as two-wheelers. Victory went to S. L. Bailey, on a Douglas, with S. F. Garrett, on a Regal Precision, second, and R. L. Frintz, on a Bat, third. The meeting was concluded by a hill-climb, in which, however, there were but three entries. In Class B, Bailey took the Douglas up the test hill at a speed of 33·36 m.p.h.; in Class C, S. D. Timson, on the Rudge, went up to 28·59 m.p.h., and G. F. Hunter, on a Zenith, in Classes D and E, did 32·56 m.p.h.



Fräulein Helene Morariu, the only lady driver competing in the Austrian-Alpine Trial, at the wheel of her Puch car. She was unfortunate in having the front axle of her car bent through a collision with a kerb-stone, but her pluck was rewarded by a special prize presented to her by a committee of the competitors.

The Tsar's Cup.

JUST as we go to press the results of the Tsar's Cup come to hand as follows :—

The Tsar's Cup.—Chorigine (Loreley).

Grand Duke Michael's Prize.—Petit (Bedford).

Imperial A.C. of Russia's Team Prize (two cars).—Efront and Lapine on Lancia cars.

Individual Prizes.—1, Valentia (Hispano-Suiza); 2, Efront (Lancia); 3, Lapine (Lancia).

Revat Prize.—Kienast (Komnik).

Baltic A.C.'s Prize.—Vienart (Komnik).

Kiga Prize.—Lurre (Komnik).

Gold Medal.—Ovsiannikoff (Vauxhall).

Silver Gilt Medal.—Rietti (Itala).

R.A.C. Associates' Gala Day.

A SPLENDID list of entries has been received for the various events which make up the full programme arranged for the R.A.C. Associates' Race Meeting, which is to be held at Brooklands this (Saturday) afternoon. Racing starts at 2 o'clock, while the last event, the aviation bomb-dropping competition, is timed to take place at 5.30 p.m.

The items include: skilful driving race and hill-climb; motor-cycle handicap; relay race; motor-cycle team race; all-comers' handicap; inter-club team hill-climb; blindfold-driving competition.

An Irish End-to-End Trial.

OWING to the non-arrival of the official starter, the Coastguard officer at Rock Island Station, the nearest point approachable by road to Mizen Head, which had been designated as the starting point of the Motor Cycle Union of Ireland's End-to-End run, was called upon to officiate. Instead of sending the competitors off singly at intervals, he dispatched the forty-one riders in a bunch at one o'clock on the morning of July 15th. The trial was divided into two sections, the division being at Dublin. These sections were further divided up so that the competitors might be checked. Among the riders were one or two from England, including Miss Muriel Hind on a new 6-h.p. Rex. The most serious troubles experienced on the road in the south-west of Ireland were punctures, and several of the competitors were late in arriving at Dublin from this cause. Five of the competitors dropped out before reaching Dublin. An hour's rest was taken in the Irish capital, and then the journey was resumed through Banbridge and Antrim to Ballinboy, near Ballycastle, where the trial finished. The awards were as follows :—

Gold Medals.—C. E. Murphy (Triumph), J. Stewart (Triumph), J. Lavery (Ariel), W. F. Adams (B.S.A.), W. J. Chambers (B.S.A.), E. Clarke (Douglas), T. J. Woods (Ariel), P. Phillips (Douglas), I. R. Thompson (B.S.A.), T. E. Greene (Rudge), C. Kirk (Triumph), H. Greave (2¾ Enfield), R. Lord (6 Rex), R. S. Russell (3½ Matchless), S. S. Sloane (Rudge), Miss Hind (6 Rex), L. Dobbin (8 Matchless), W. Kirk (5 Indian), W. J. Powell (Rudge).

Silver Medals.—P. J. Brady (Rudge), R. Mundy (Douglas), H. Gibson (Bradbury), R. Walshe (Calthorpe), H. P. Mooney (2¾ Enfield), W. H. Humphrey (3½ Humber), D. Gray (James), G. Roche (Rover), F. Short (3½ Humber).

A special prize for the best lightweight performance was awarded to E. Clarke (2¾ Douglas), while the sidecar prize went to Mr. H. Gibson (3½ Bradbury and sidecar).

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting of the Management Committee was held on Monday last. Present: Mr. A. J. Allison, presiding, Mr. H. Pye, Trustee. Committee: Messrs. Shaw, Moores, Emmerson, Tyler, Holland No. 2, Kahn, Oliver and Hardy.

The minutes of the previous meeting were read and confirmed.

Legal Department.

Letters were read from the solicitor with reference to the case of L.C.C. *v.* the Society. The case will be heard on July 31st at the Westminster County Court. The L.C.C. seek to make the Society take out a licence in the same manner as Employment Bureaux working for gain by charging fees both to the employer and the employee. The Society charge no fees, and therefore contend that no licence is required for a properly constituted society.

Insurance Bill.

The following correspondence was submitted to the Committee by the secretary. The matter being of importance to members, it is hereby fully reported.

National Society of Chauffeurs.
June 27th, 1912.

To the Secretary to the Insurance Commissioners.

DEAR SIR,—We have been advised by Mr. Hackford to write to you in regard to the position of the chauffeur when touring abroad. The Act appears to clearly set out that when a person leaves the British Isles, the State Insurance ceases. Last December, Mr. Braithwaite, when interviewed at the Treasury Offices, said it was a matter for the Commissioners when framing the regulations for the working of the Act. Mr. Hackford, interviewed last Monday, could give no official answer to the question. The point raised is the status of the chauffeur when returning to England. Does he by paying up arrears obtain immediate benefits, or must he in a sense rejoin and be entitled to benefits at the expiration of 26 weeks? This question is one which is at the moment causing a deal of irritation among our members and chauffeurs generally, and your early definition of this matter would greatly oblige.

Yours faithfully,
ARTHUR SEXTON.

National Health Insurance Commission (England),
Buckingham Gate, London, S.W., July 17th, 1912.

SIR,—In reply to your letter of the 27th ult., I am directed by the National Health Insurance Commission (England) to draw your attention to Section 10 (5) of the National Insurance Act, under which arrears may be paid which accrued during the calendar year current and the previous calendar year, but will not for the purpose of qualifying for sickness or disablement benefit count as paid until one month after payment. Subject to these restrictions, and provided the necessary periods had elapsed since his entry into insurance, an insured person returning to England would be entitled to immediate benefits. The enclosed answer given by the Secretary to the Treasury in the House of Commons on the 21st ult., will be of interest to you.

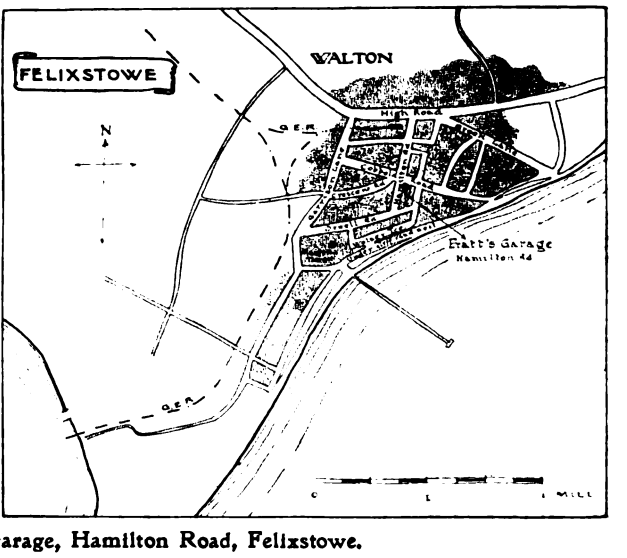
I am, Sir,
Your obedient servant,
G. M. YOUNG.

National Insurance Act. Clause 10, Section 5.—"Where an insured person has paid any arrears of contributions payable by or in respect of him which accrued during the calendar year current at the date of payment and the previous calendar year, he shall be treated for the purposes of this section as if the arrears so paid had never become due.

"Provided that if such person is at the date of payment or subsequently within one month thereafter becomes incapable of work by reason of disease or disablement, he shall for the purposes of this section be deemed to be still in arrear in respect of the amount so paid until after the expiration of one month from the date of such payment."

The explanation of this section is as follows:—Where an insured person has paid any arrears of contributions payable by or in respect of him (*i.e.*, his own and the employer's in respect of him) which accrued during the calendar year current at the date of payment and the previous calendar year, he shall be treated as if the arrears so paid had never become due; but if within one month of so paying the arrears he becomes through sickness or disablement incapable of





N.S.C. GARAGES, No. 7.—Pratts' Garage, Hamilton Road, Felixstowe.

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work, he shall be deemed to be still in arrear until after the expiration of one month from the date of such payment. This is to obviate a man who knows he has sickness upon him, paying up his arrears and coming forthwith into benefit; he will accordingly have to wait for a period of four weeks before benefit will be paid.

Questions and Answers. House of Commons.

Sir Henry Norman.—1. To ask the Secretary to the Treasury if a chauffeur who is temporarily absent with his employer from the United Kingdom is, during the absence, outside the National Insurance Act.—*A*. Yes.

2. Whether his employer is required during the absence to pay contributions or deduct them from wages.—*A*. No; as he pays nothing he can deduct nothing.

3. Whether to avoid arrears the chauffeur must, during absence, voluntarily pay his own contributions and his employer's, if the latter does not pay them.—*A*. Yes, except that the approved society may excuse the employer's share.

4. Whether on his return from temporary absence the chauffeur, both classes of contributions being paid, is in the same position as when he left the United Kingdom, without having suffered any loss of insurance status or deprivation of claim.—*A*. Yes.

5. Whether on his return to the United Kingdom he is entitled to full benefit for sickness or disablement incurred abroad.—*A*. If by sickness and disablement incurred abroad my hon. friend means sickness which started or disablement which occurred abroad, the answer is yes.

6. Whether an approved society will be permitted to penalise a member for temporary absence abroad.—*A*. No, though it might depend upon the form of penalisation which my hon. friend has in mind.

The whole question is now made clear. Chauffeurs when abroad are outside of the Act, therefore the employer is not required to pay or deduct any contribution.

The answer to the first question asked by Sir Henry Norman, taken with the fifth, disposes of the definition given by the lecturer at the H.C.C., that payment would be made for sickness while abroad. Immediately on return, if an illness be contracted abroad, the insured person will come into immediate benefits, providing he has kept up his payments.

In answer to the third question by Sir Henry Norman, the Secretary to the Treasury said that the approved society may, if it chooses, excuse the employer. Seeing that it is a question of pounds, shillings and pence, as regards the approved society, it is not likely that they would excuse the employer's part of the contribution. It is therefore to the interest of the insured person that he himself pays the whole amount during his absence, *i.e.*, see that his insurance card is fully stamped and returned to the approved society at the end of each quarter.

If not, supposing the stay is over thirteen weeks, on reaching the British Isles he would not be entitled to sickness benefit until one month from date of paying all arrears. If returning ill, it would mean a fine of 10*s*. per week for four weeks, which is rather a heavy penalty.

The question as to whether Part 2 of the Act (Unemployment) could be applied to members was discussed. The secretary reported that he had an appointment with the Commissioners on another matter, and would make the necessary inquiries.

Accepted for Membership.

John E. Williams, Surbiton. Arthur P. Hibberd, London, N.W.
Frederick W. Prett, Kildare. Arthur Vincent, Chesterfield.

Applications for Membership.

Robert Dent, London, N. Albert J. Kippin, London, N.W.
Walter J. Belcher, Egham, Surrey. George W. Willson, London, N.
Henry A. Dye, London, N.W.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s*. 6*d*. Subsequent subscriptions, 2*s*. per month. Payable in advance on the 1st of each month. Badges, 1*s*. 1*d*., post free. Members may pay yearly 21*s*., or half-yearly 10*s*. 6*d*., payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s*. 6*d*. (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed

Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.



Not dancing Dervishes, but just ladies in the special race for the fair sex at the Flower Show Competition at the Essex Motor Club Gymkhana at High Beech, doing "sprints," as recorded by the camera.

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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

66.

ENGINE-KNOCK TRACED TO MAGNETO.—A few weeks ago I was puzzled and to some extent alarmed by a very elusive knock in the engine of my 18-h.p. De Dietrich car. The knock was elusive in so far as it would turn up sometimes whatever the position of the throttle and spark-levers, and whether the engine was pulling hard or running idle, and at other times it would disappear altogether. The car is a last year's model, and has not done so very much work that would make any of the crank or big-end bearings knock. The carbon deposit had been removed only a short time ago, and carburettor and ignition were apparently in the very best order, because the engine pulled very well indeed. Well, I listened around, and finally made sure that the knock came from somewhere on the near side; in fact, it sounded very much like one of the cam-shaft bearings. All of a sudden, however, it seemed to come out of the magneto. As the magneto is only held down by a clip, I took it out and had a good look round. It is a Mea H.T. machine, and in this type the magnets are something like bell-shaped, and are placed horizontally in a kind of cradle with a plain bearing on either end. The armature runs inside these magnets on ball-bearings concentric to the magnet-bearings, and the advance and retard is effected by moving the magnets around the armature.

I found that one of the magnet-bearings had a small amount of play, but it did not appear to me sufficient to cause the knock. Anyhow, I took the bearing to pieces, and found a kind of spring-loaded plunger pressing against the bearing from underneath. I pulled out the spring of this plunger so as to increase the pressure, re-assembled the lot, and have never heard the knock since; it is now about eight weeks that I did the little job.—*F. Shaw.*

67.

PECULIAR SQUEAK.—In the page of "Chauffeurs' Experiences" in your last issue, "N. S. C. Holmwood" tells us the story of a peculiar squeak which he finally traced to the valve springs. His very interesting remarks, in which he states that the squeak only appeared when the engine was under load and not when it was running idle, he winds up with the following sentence: "What I should like to know is, why they (the valve-springs—ED.) squeaked only when the engine was pulling and not when it was running idle, because there is the same *amount of movement* on the valves in both cases." The italics are mine.

In the following lines I am endeavouring to furnish an answer to this query. The squeak, as we are told, was caused by the inside of the springs rubbing against something, and as no noise was noticeable when running idle it follows that they did not touch. They touched, however, when running under load, which can be taken as nearly equivalent to running faster. If the writer of the letter will take a valve-spring and try and compress it with his hands he will find that, when the pressure is applied slowly and evenly, the spring will fold up quite straight; but let him try and press it quickly either between the palms of his hands or by dealing it a blow with the fist, he will find that the spring bends through and jumps sideways.

The lesson of this simple experiment applied to the valve-springs in position on the engine shows that when the engine is running idle, *i.e.*, dead slow, the springs are being compressed gently, therefore they recede parallel with the valve stem. When the engine is pulling, *i.e.*, when it is being speeded up, the pressure that is brought to bear on the spring very much resembles a more or less sudden blow, with the result that it bends so that its inside rubs against the valve stem or the guide, and thus causes the noise.

It follows, therefore, that it is not the *amount* of movement that matters in this case, but *the time* it takes to complete it. This to my mind seems to explain the mystery; can anyone offer another explanation?—*F. E. Lane.*

68.

TAKING OUT DENTS.—Dents may be removed from head-lamps, petrol-tanks, and other articles of sheet-metal in the following manner without dismantling them.

The end of a strip of tin is fastened to the deepest part of the depression by means of a drop of solder. When the free end of the strip is held in a hand-vice or a pair of pliers in many cases the dent can be pulled out. Where, however, pulling alone does not move the dented metal, lightly hammering the part with a copper or fibre hammer around the edges of the depression will generally do the trick.

After removing the strip of tin and rubbing out the mark of the solder with a piece of very fine emery cloth the lamp can be polished and its appearance is restored. —*R. Thomas.*

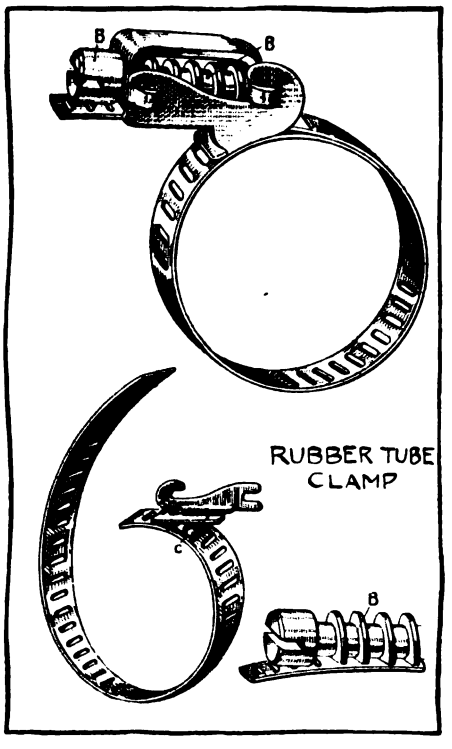
69.

A GOOD SOLDERING FLUX.—For electrical work and all other kinds of soldering where it is not advisable to use a flux containing acid; few soldering solutions are better than resin dissolved in alcohol or methylated spirit. When this flux is applied with a little brush, the alcohol quickly vaporises leaving an even and thin coating of resin spread over the work, which will be found to "take" the solder easily. Owing to it being non-poisonous, the flux is especially to be recommended when soldering with chipped or otherwise injured fingers.—"*Tinker.*"

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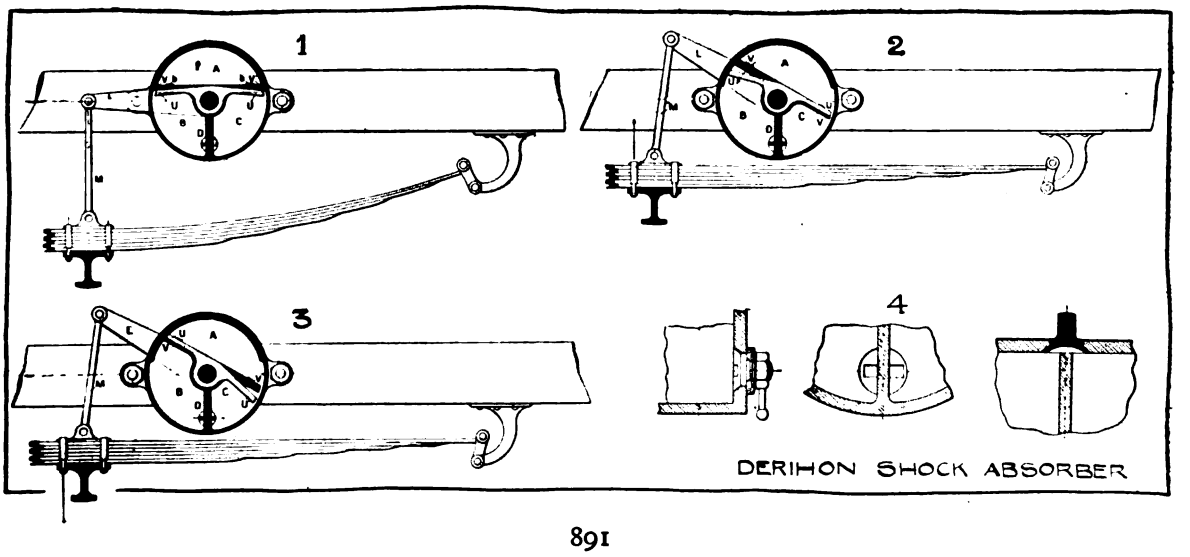
FOREIGN MISCELLANY.

Two buttons for six-cylinder starters.—It is not always possible to start a six-cylinder motor equipped with an automobile gas starter simply by depressing the starter button on the dash, for unless the crankshaft is in such a position that the circuit breaker of the magneto is closed, no spark is produced in any of the cylinders, and firing is therefore impossible. Shifting the spark-lever sometimes will close the gap, but the practice is not to be relied on. If a second push button is "bridged" across the terminals of the breaker, however, a spark always can be produced simply by depressing both buttons at the same time, and the engine starter thus is made much more reliable.—*Motor World, N. Y.*



An ingenious rubber-tube clamp is illustrated herewith. A metal band, pierced with transverse slots, carries a platform, *c*, at one end, to the vertical side of which a frame is hooked, which carries the screw, B; the threads of this screw engage with the slots of the band, which latter is therefore tightened by rotating the screw.—*Omnia.*

The Derihon shock-absorber appears to constitute an advance in appliances of this sort, partly owing to the entire abolition of all valves, springs, and similar parts which are liable to stick or otherwise cause trouble, and partly because of the principle on which it operates. As shown in the illustrations it consists of a drum-shaped chamber, which is divided into three compartments, by means of the fixed partition, D, and the movable vanes, UU^1 and VV^1 (which move practically as one). The diameter of the upper semi-circumference of the drum is slightly less than that of the remaining portion. The vanes, VV^1, are rigidly connected, and move up and down with the lever, L, to which the oscillations of the spring are transmitted through the connecting-rod, M. The vanes, UU^1, would be free to rotate on the axis of the drum if it were not for two projections on the vanes, VV^2, which drag UU^1 with them, after having rotated independently through a small arc. D is a small by-pass through which the fluid contained in the apparatus can flow from one side to the other of the fixed partition. The operation of the device is as follows: When disturbed from their normal position (*see* Fig. 1) to that shown in Fig. 2, *i.e.*, on the compression of the springs, the oil (or other fluid) contained in compartment, C, flows round the ends of V^1 and U^1 into A, and from there into B, through the V-shaped opening between the vanes, V and U. This motion, which corresponds with the first compression of the spring, is therefore entirely free and unbraked. On the rebound of the spring taking place, the vanes, VV^1, move until V is level with U (*see* Fig. 3), after which both move together as one; this compresses the oil contained in B, as the ends of V and U are in contact with that part of the drum which is of smaller diameter; the oil is, therefore, obliged to pass through the by-pass, D, into the compartment, C, and this brakes the rebound of the spring. If the initial oscillation of the spring is caused by an expansion of the spring, the action is exactly the same, the opposite vanes, V^1 and U^1, doing the work. The by-pass is illustrated in Fig. 4, and consists of a segmental slot cut in a rotating plug in the wall of the drum. When this slot is horizontal, the maximum passage is afforded to the oil in flowing from B to C; when it is rotated so as to be in a vertical position, all communication between the two compartments is cut off and the escape of the oil will have to take place through leakage past the vanes, U and V, or U^1 and V^1, as the case may be. By this means, the braking effort of the appliance may be regulated to suit the particular car to which it is fitted.—*Vie Automobile.*



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MOTOR BOATING.

British International Trophy.

THE Royal Motor Yacht Club has now received from the Motor Boat Club of America a chart showing the course proposed for the races for the British International Trophy, which commence on August 31st, and continue on each succeeding day, except Sundays, until one country has won two races. The venue will again be Huntingdon Bay, Long Island Sound, New York, and the course will be very similar to last year, the only difference being that it has been moved closer in shore, is triangular, the four rounds of 7½ sea miles each, making a total of 30 sea miles. All marks will be left on the port-hand, as in last year's races.

Mr. Mackay Edgar's "Maple Leaf IV" has been chosen as one of the team of three to represent this country in the races, and the other two will be selected as soon as Mr. D. Hanbury's "Silver Heels" has undergone an official trial. Should she prove faster than "Minimar," Mr. N. C. Neill has in the most sporting manner decided to take his boat to America as a reserve for the team, which will also include the Marquis of Anglesey's "Mona."

Cruiser Races at Ramsgate.

UNDER the auspices of the British Motor Boat Club, races for cabin cruisers were held at Ramsgate on Friday, Saturday, and Monday last. In Friday's race the starters were: Mr. A. J. Wilson's "Splash," which was at scratch, Mr. T. A. Comber's "Flora," and Mr. G. Paxton's "Braemar." The race was under M.M.A. rating and time scale, which gave the victory to "Braemar," with "Splash" second. The same boats started in a race on Saturday, which produced a splendid finish, 13 secs. covering the three boats at the end. "Flora" was the winner, leading "Braemar" across the line by 11 secs. with "Splash" only 2 secs. later. In Monday's race "Splash" was an absentee, but her place was taken by Mr. O. B. Coll's "Hirondelle." She however, fared none too well, and "Flora" had an easy win, with "Braemar" second.

CURRENT ITEMS OF INTEREST.

Inconsiderate Driving in Kent.

A NUMBER of cases of inconsiderate driving in Kent have just been brought to the notice of the R.A.C., and the Club, therefore, desires to give warning to those comparatively few drivers of motor cars who still persist in selfishly ignoring the rights of other users of the road, that if this practice is not stopped it may cause irksome restrictions to be imposed on the large body of motorists who use the roads of Kent. Further, inconsiderate drivers would do well to remember that in the past the Club has prosecuted in a number of cases and secured convictions. The numbers of the offending cars are being transmitted to the Club.

Motorists and the Cripples.

THE cripples in Harrogate and Sheffield have recently enjoyed a day in the country through the kindness of members of the Harrogate and Sheffield Automobile Clubs respectively. The Sheffield children to the number of about 190 were taken in 44 cars to the Duke of Devonshire's Park at Chatsworth where they were entertained to tea by the club, while each child was presented with a toy by the generosity of Mr. Percy Richardson. A procession of 27 cars took the Harrogate cripples to Scriven Park, where they were entertained by the Rev. C. S. and Mrs. Slingsby and Mr. and Mrs. J. W. Wilson.

The Camera and the Car.

ALNWICK CASTLE, a view of which is illustrated this week on page 871, is one of the largest Gothic buildings in Great Britain, containing about five acres of ground within its walls, which are flanked with sixteen towers and turrets. It is, perhaps, difficult to imagine a more formidable contrivance in the shape of an approach than the Barbican or main western entrance. In addition to this fortification, there was a massive iron-studded gateway through which the famous Hotspur, the hero of Chevy Chase, rode to his death at Shrewsbury, and his brother to meet his end at the battle of St. Albans. The stone figures were placed on the top of the Barbican in order to deceive the enemy as to the garrison—a common practice in the warfare of the period. During the fifteenth and sixteenth centuries very little seems to have been done to keep the Castle in anything like an efficient state of repair, although during this time it must have been besieged and assaulted almost times without number. In its restored condition the Castle retains many of the characteristics of an old Border stronghold, and constitutes one of "the stately homes of England." The up-to-date appearance of the 17·25-h.p. Armstrong-Whitworth car by the Barbican gate presents a striking contrast to the ancient and rugged building. The present Duke of Northumberland owns two of these famous cars, although it is only within the last year or two that he could be persuaded to allow motor cars within the Castle precincts.

Portugal and Roumania in International Convention.

PORTUGAL and Roumania have now come into the International Convention regarding motor touring, and passes can be obtained from the various clubs and associations authorised to issue them. Also the Colonies and Protectorates of Barbadoes, Gibraltar, Leeward Islands, Malta, Northern Nigeria, Sierra Leone and Southern Nigeria have adopted the mark "G.B." for their motor vehicles.

Nocturnal Police Methods at Carlisle.

MOTORISTS going north are advised to bear in mind that the police have been timing cars passing through Carlisle during the night time. Motorists are also asked to drive carefully through Moffat, especially on Sundays during the hours of church service, as several complaints have been received by the Scottish A.C. as to fast driving through the burgh.

R.A.C. and Central Tramway Standards.

BY the action of the Royal Automobile and Associated Clubs in granting £100 towards the cost of the removal of all the central tramway standards on the Great North Road through Finchley, the work can be proceeded with at once, the rest of the cost being borne by the Middlesex County Council, the Finchley Urban District Council, and the Metropolitan Electric Tramway Company. It is with a sigh of relief that the motorist will witness the departure of these obstructions on this road.

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ROUNDABOUT NOTES.

A BREACH of faith on the part of the Clerk of the Weather failed to affect the annual outing of the staff of the head office and London branch of the British Petroleum Co., Ltd., held on Saturday, July 20th. The party numbered 125, including Mr. R. Airey (general manager), Mr. C. Bourke (secretary), Mr. A. Grey (manager London branch, town trade), and Mr. A. Nevill (manager London branch, City depôt). Reading was reached from Paddington at 10.30 a.m., and proceeded *via* launch to Henley, where luncheon was served. A wet afternoon did not damp the spirits of the voyagers, who continued by river to Windsor, tea being taken at Monkey Island. The Royal Borough was reached at nightfall, and thence train was taken to Paddington, thus ending a successful and enjoyable day.

THE demand for the little celluloid model of the Argyll elliptical sleeve-valve engine quickly absorbed the large supply received from the makers. The stock has, however, now been replenished, and the many disappointed applicants are asked to communicate to the head office of Argylls, Ltd., at Alexandria, Dumbartonshire.

MESSRS. LEO RIPAULT AND CO. write us that they were misinformed regarding the plugs used in the 4th, 6th and 8th cars to finish in the Grand Prix races. Only the 1st, 3rd and 5th to finish were fitted with the famous Oleo plugs.

FOR some time H.R.H. Princess Henry of Battenberg has been included amongst those who use Vauxhall motor carriages. Quite recently a Vauxhall of the sporting 20-h.p. "Prince Henry" type has been supplied by the Company to her son, Prince Leopold of Battenberg.

WRITING to the Calthorpe Motor Co., Ltd., recently, Mr. F. Gibbons, of Nottingham, states that his 15-h.p. Calthorpe has done over 1,500 miles, and with the exception of changing a faulty plug has had no attention. The car was delivered only a few hours before the London to Edinburgh trial, in which it took part and won a gold medal. It can easily do 50 m.p.h. with four passengers up, and it is very light on its tyres.

DUNLOP tyres played an important part in the Standard Car Race, both the winning Singer and the Gladiator, which finished second, being so equipped.

WRITING to Messrs. Newton and Bennett, Ltd., the British concessionaires of S.C.A.T. cars, of Targa Florio fame, Mr. H. C. Courtney speaks in high terms of the utility and excellence of the N.B. self-starting device attached thereto. He says: "The self-starter is working admirably; I find it a perfect boon, and would not be without it for any consideration."

As some uncertainty prevails as to the responsibility for the design and construction of the engines installed in Mr. Mackay Edgar's "Maple Leaf IV," we are asked to mention that the whole of the work, with the exception of the crank-case, crank-shaft, and parts of clutch, was designed and constructed at the Longbridge works of the Austin Motor Co. The crank-shafts were made, we are informed, by a Sheffield firm, and the machining of the crank-case was done by the Austin Co. for the Orleans Co., when they built the engines or the boat, "Maple Leaf," which took part in last year's race, so that in no way can the engine be considered as other than built by the Austin Co. The engines have proved extraordinarily successful for such a large installation.



Company Doings

Rolls-Royce, Ltd.

THE directors, at their meeting held on Friday, July 12th, decided to pay an interim dividend on the whole of the Company's shares for the half-year ended April 30th last at the rate of 10 per cent. per annum, less income tax, payable July 31st.

NEW COMPANIES REGISTERED.

Private Companies.

Hensley Motors, Ltd.—Capital £2,000, in £5 shares. Acquiring business of a motor engineer carried on by W. Stewart at 76 and 83, Marmion Road, Southsea.

Hull and Willerby Motor Co., Ltd., Parliament Chambers, Quay Street, Hull.—Capital £1,500, in £1 shares. First directors, C. H. A. Wilson, E. Goddard, and W. R. Ringrose-Voase, J.P.

International Auto Wheel Co., Ltd., 85, Gracechurch Street, E.C.—Capital £5,275, in 5,000 pref. shares of £1 each and 5,500 ordinary shares of 1s. each.

Inter-Transport Co., Ltd., Spencer House, South Place, E.C.—Capital £5,000, in £1 shares. Proprietors and manufacturers of motor vans, &c.

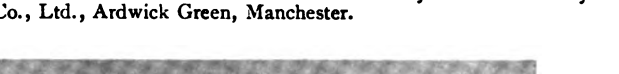
Isle of Thanet Motor Co., Ltd., Smith's Yard, King Street, Ramsgate.—Capital £2,000, in £1 shares.

Mahlers, Ltd.—Capital £2,000, in £1 shares. Acquiring business carried on at 290, Birmingham Road, Dudley, and 87, Station Street, Birmingham, as Mahler Bros. Proprietors of motor cabs, &c.

Pollard Engine Synd., Ltd., Capel House, New Broad Street, E.C.—Capital £1,000, in £1 shares. First directors, J. L. Elliot and A. Bonnin.

Waverley Motor Co., Ltd., 1, West Regent Street, Glasgow.—Capital £2,000, in £1 shares.

Yorkshire Motor Car Co., Ltd.—Capital £35,000, in £1 shares.



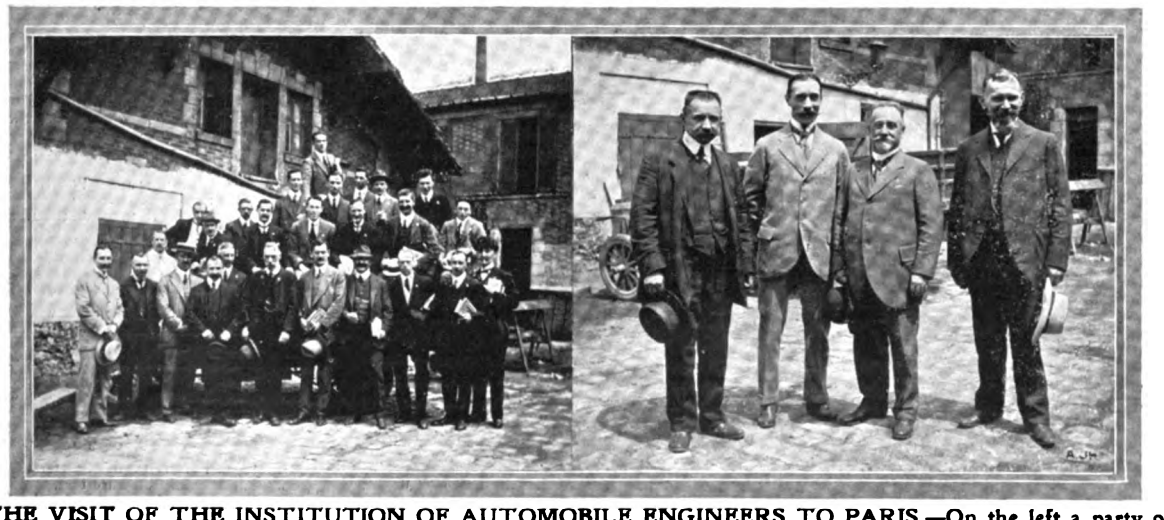
PUBLICATIONS RECEIVED.

Portable Wireless Telegraph Stations. London: Marconi's Wireless Telegraph Co., Ltd., Marconi House, Strand.

Catalogues.

Brooke Industrial Motors. J. W. Brooke and Co., Ltd., Engineers, Adrian Works, Lowestoft, England.

Challiner Detachable Rims. The Shrewsbury and Challiner Tyre Co., Ltd., Ardwick Green, Manchester.



THE VISIT OF THE INSTITUTION OF AUTOMOBILE ENGINEERS TO PARIS.—On the left a party of the visitors, with Mr. L. A. G. Legros, the President, in the centre, taken at the works of Messrs. Lemoine. On the right are the Directors of the Lemoine works who entertained the I.A.E.

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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

27,962. December 12th, 1911. Improved Construction and Arrangement of Automobiles. J. M. Strachan, Culver Lodge, Acton Vale, W.—The objects of this invention are: To better utilise the space at disposal on the frame; to dispense with all necessity for a bonnet, which is at best an unsightly contrivance; and to reduce the overall length of the vehicle while carrying an equal number of passengers, and yet provide the said passengers with a completely closing landau body that is also capable of being completely opened without leaving upstanding or projecting frame portions. Fig. 1 is an elevation of the car, showiug the hood completely closed, with a part of the body in section. Fig. 2 is an elevation showing the hood completely open. A is the engine, which, instead of being placed as usual in the front of the frame, is set back considerably thereon, *see* Fig. 1. This enables the front seat, B, for the driver and one passenger, to be placed in the front of the vehicle. The seat is above the radiator, C, and partly above the engine, A. A door is provided in front for access to the seat, B. The steering-pillar, E, is in the new position as shown, and is connected to the front wheels in any known manner. The fan, F, may conveniently be of rather larger size than usual, so as to induce a larger flow of air through the radiator and past the engine, as indicated by the arrows, Fig. 1. An aperture, G, closed by a door, is formed on each side of the body, in order to allow of access to the engine. The front seat next the driver is made removable or slideable forward, in order to fill the radiator, the filler for which is for this purpose placed a little on one side. Alternatively, both front seats may be formed to slide forward bodily, to allow of more ready access to the engine. The starting handle shaft, H, is of increased length to allow of its reaching the crank shaft from the front, the starting handle, H^1, being in the usual place.—June 26th, 1912.

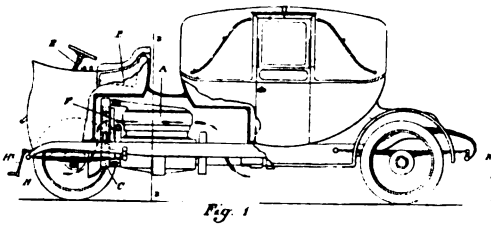


Fig. 1

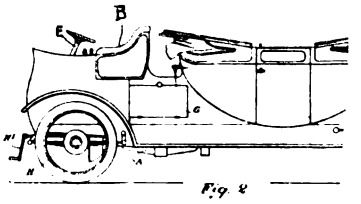


Fig. 2

20,288. September 13th, 1911. Improved means for use in the Lubrication of Change Speed Gear, and other Driving Mechanism, used with Automobiles. The Wolseley Tool and Motor Car Co., Ltd., and A. J. Rowledge, Adderley Park, Birmingham.—This invention relates more especially to the lubrication of change speed gear, and the differential gear of live axles, of automobiles. When the change speed gear, and the differential gear of live axles have been lubricated by oil, as distinct from thick grease, the boxes containing the gear have theoretically been filled with oil up to a certain level, but frequently too little or too much oil is supplied to the box with the result, in the former case, that the parts have not all been efficiently lubricated, and in the latter case that considerable trouble has been experienced through oil escaping from the box and lodging upon other parts of the car, such as the brakes and the body work; and this invention has for its object to ensure that whilst the gear will be efficiently lubricated, the trouble above referred to as incidental to over-lubrication will be avoided. Fig. 1 is a longitudinal section through a gear-box, showing two troughs for lubricating the change speed gear, one of the troughs being common in respect of two of the wheels which are on the same shaft, and the other being provided in respect of another wheel of such shaft. Fig. 4 is a section, taken longitudinally through the forward end of the lower portion of the engine case, showing the forward bearing of the crank-shaft in section and means by which the chain-gear is lubricated which drives the auxiliaries of the engine, such as the cam-shaft, pump and magneto, from the crank-shaft. Referring first to Fig. 1, A is the change speed gear-box, B one of the gear-shafts, C, C^1, C^2 wheels on the shaft, B, D a trough which is supplied by a pump with oil in excess, and runs transversely of the vehicle, and is of such width and in such position that both the wheels, C and C^1, dip thereinto, and D^1 is a trough which is also supplied by a pump with oil in excess, and runs transversely of the vehicle, and into this trough the wheel, C^2, dips. The excess of oil flows over from the troughs into a sump, *a*, in the bottom of the gear-case, and is drawn therefrom by the pump. Oil checks, *b*, and returns, b^1, of any convenient form, are provided adjacent to where the shaft, B, and any other shaft pass through the ends of the box. Referring to Fig. 4, the chain-wheel, F^1, on the forward end of the crank-shaft, F, dips into a trough, D, which runs transversely of the automobile, and stands forward from the lower side of the bearing-block, G, which carries the forward bearing, *f*, of the crank-shaft. A trough, D^2, is formed in the upper side of the bearing-block and is supplied by a pump with oil in excess, such as through a pipe, H, and lubricates the bearing, *f*, and an overflow pipe, d^1, from the trough, D^2, supplies oil to the trough, D. The overflow from the trough, D, flows into the sump, *a*, in the bottom of the engine-case, and is drawn therefrom by the pump.—July 3rd, 1912.

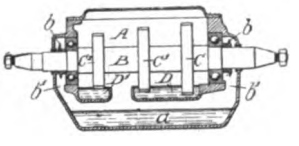


Fig 3

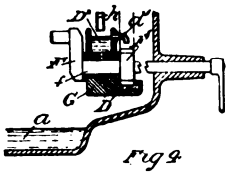


Fig 4

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published July 18th, 1912.

12,138. J. D. Roots. Valve gear.
12,707. F. G. Jones. Hydraulic clutches and driving gear.
14,642. H. C. Newman. Carburettors.
14,799. J. Knight. Spare wheels.
14,995. E. Garuffa. I.C. engine.
15,048. T. H. Densmore and L. Menary. I.C. engines.
15,363. J. Windibank. Elastic tyres.
15,938. T. H. Rushton. Wheels.
16,743. K. Rotherham and W. Johnson. Carburettor.
16,971. S. A. Horstmann and C. A. Lister. Spring wheel.
18,294. L. Sgal and Lever Spring Co. Spring suspension.
18,570. J. Sandland. Wheel rim.
19,693. E. W. Nichols and J. H. Kelsey. Heating of steering wheels.
20,288. Wolseley Tool and Motor Car Co. and A. J. Rowledge. Lubrication of speed-gear, &c.
21,480. W. C. Pinson and W. R. Blaxley. Variable-speed and free engine-gearing.
21,636. Albion Motor Car Co. and T. B. Murray. Leaf springs.
21,723. L. J. Rowan. Valve gear.
23,419. C. S. and J. A. Challiner. Wheels.
23,486. J. Paturbau. Friction speed-change gear.
24,627. F. G. Losey. I.C. motors.
24,989. C. N. Teetor. Distributing valve mechanism.
26,782. C. P. Simmons. Carburettors.
27,041. M. Birkigt. Inflating tyres.
27,710. S. Barth. I.C. engines.
28,159. Soc. Anon. des Automobiles Gregoire. Chain transmission.

Published July 25th, 1912.

7,966. D. Marshall. Pneumatic tyres.
15,141. W. A. Sorg. I.C. engines.
15,473 N. A. Christensen. I.C. engines.
17,299. Soc. des Moteurs Sabathe. Atomizers for liquid fuel.
17,715. J. Donkin. Resilient tyres.
20,019. C. and E. Fein. Magneto ignition.
20,214. Triumph Cycle Co. and E. L. Roberts. I.C. engine valve-tappets.
20,748. T. Brown and J. Fogan. Spring wheels.
20,839. S. I. Hitchcock. Mud-guards.
22,763. C. P. and T. P. Lomas. Elastic tyre.
22,776. Maschinenfabrik Georg Schwager. Shock-absorber.
22,858. H. J. Pennington-Hayward. Signalling devices.
23,044. T. G. Cushman. Shock-absorbers.
23,838. G. S. Doty and J. D. Show. Elastic tyres.
26,227. J. McKechnie. Liquid fuel supply for I.C. engines.
26,591. B. C. Ball and — Younie. Demountable tyre rims.
29,293. G. Sonck. Rotary distributor for I.C. engines.

Applied for in 1912.

Published July 18th, 1912.

3,458. F. S. Rachini. Resilient wheels.
4,381. H. W. Robinson and A. H. Nicholson. Carburettors.
7,142. S. and W. C. Pollock. Vaporising liquid fuel.
9,501. Ger. Korting Akt.-Ges. Fuel-injecting apparatus.

Published July 25th, 1912.

484. J. W. Fitzgerald. Starters.
3,706. A. Booker. Carburettors.
4,699. R. Bosch. Interrupter for elec. ignition.
6,102. W. A. Harber. Sparking-plugs.
6,567. M. C. Brenot. Ignition devices.
6,824. H. J. Jaeger. Automatic starting devices.
7,965. W. Volkening. Variable-speed gearing

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 604. (No. 31, Vol. XVII.) | AUGUST 3, 1912. | [Weekly, Price 3d. Post Free, 3½d.



"Auto." (Yellow Cover) Copyright.

R.A.C. ASSOCIATES AT BROOKLANDS.—Miss Muriel Thompson travelling splendidly up the test hill on the good old Austin "Pobble" in the Skilful Driving Race.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

EDITORIAL AND GENERAL OFFICES:
44, ST. MARTIN'S LANE, LONDON, W.C.
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Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
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Abroad	6 6	13 0	Abroad	10 0	20 0

Remittances.

Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

The R.A.C. Gala Day.

We were glad to notice, on the occasion of the R.A.C. inter-club meeting and "Gala Day," that the organisation and management of the events showed a very marked improvement over that of last year. In fact, the whole affair went off very well indeed, and we offer our congratulations to the committee entrusted with the work of carrying out the event. There is one thing, however, that occurs to us, which is, that there is very little originality about the programme of these gala days. Hill-climbs, relay races, skilful driving competitions, and so forth are very interesting—once; but if this yearly meeting of the clubs is to preserve its interest from year to year the committee will have to devise something new and fresh in the way of competitions. It must be borne in mind that the spectacular interest must be catered for as well as the fun of the competitors themselves; and, really, in the events which figure on the programme of this meeting, there is not much to interest the spectator, unless he be a friend or fellow club member of some of the competitors. It is difficult, we know, to devise new competitions; but even if it should be beyond the capacity of the committee to invent absolutely fresh events, the old have by no means been exhausted. This is not criticism of a very successful meeting, but merely by way of suggestion for the future. It would be a great pity if this yearly function, which does so much to bring the clubs together and to keep alive the vanishing sporting interest of motoring, should drop out from inanition.

• • •

The Proposed Revival of Road-Racing.

There is almost a startling unanimity of opinion among the accredited writers on motoring in favour of a revival of road-racing in the Isle of Man. While a year ago they were mostly in opposition, they have veered right round in their views, and some of the attempts made to evade or ignore the apparent inconsistency of attitude are rather amusing. That aspect, however, scarcely concerns us at the moment, but we do rather protest when the lay Press writers claim that they alone were in opposition to the detractors of the "Four-Inch Race"—a claim that is made in so many words by one of the London morning journals. But the question that matters now is not so much that of who or which are entitled to credit for their prescient views of half a decade ago as that of whether or not a revival of racing is likely to prove beneficial to the British motor industry. In speaking of the "British" industry, it is understood that we include as coming within the scope of the word the whole industry as carried on in these islands, whether by the manufacturer of a car that is essentially British or by the agent or concessionaire who is interested in cars which have their genesis beyond the narrow seas.

The question is an exceedingly difficult one to answer at all satisfactorily. It is a favourite argument among the advocates of road-racing that the sport—we must call it that, even though the game is as purely commercial as any other form of advertising the merits of the motor manufacturers' goods—is an excellent form of window-dressing for the cause of motoring. Four or five years ago it was an excellent argument. Then, quite a large proportion of the potential car-purchasing public looked somewhat askance at motoring as a form of locomotion that had many and distinct drawbacks. They had even then not really become used to the idea of the car, and thus any form of what we may call advertising at large was useful and acceptable to the movement. But we doubt if, to use an Americanism, this argument cuts much ice in these days. The car and the movement is accepted as one of the commonplace necessities of life,

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and the particular form of prejudice, which it was one of the objects of racing and trials to kill, is dead to-day. That is, so far as our own public are concerned. It is quite possible, however, that in the Colonies and in the remoter countries of the earth, the racing influence counts for a great deal of good to the individually successful constructor and to the movement at large. Taking it by and large, it may pretty safely be predicated that the general advertising value of road-racing is a somewhat negative quantity.

The next point that falls to be considered is that of the value of racing to the firm which comes out successfully. That, it seems to us, is not a question which admits of a great deal of argument. Beyond all doubt the direct results which accrue from a victory of the kind we are discussing are well worth the outlay, and if *all* could be successful there would simply be nothing more to be said. That being impossible, the question arises whether the risk of failure is worth incurring. That, as we said last week, is a matter for the individual to decide for himself, and it cannot be settled by any who stand apart as simply lookers-on at the game.

There is still another serious point to be taken, and that is the one of the influence of racing upon the development of the vehicle. Upon this we are inclined to venture the decided opinion that it has a very high value indeed. Let us look for a moment at the results in the recent Grand Prix Race. We have no wish to keep on rubbing in Sunbeam, but for the purposes of the argument it is impossible to avoid touching upon this team's performance. Briefly, then, we find three of these cars finishing a race of approximately a thousand miles, run at an average speed well in excess of that of the fastest train in the world, all within a few minutes of each other. Now, the designers and builders of these cars have learnt valuable lessons from their experience in previous races—they have learnt how to eliminate those weaknesses which made for unsuccess. They have also learnt a further lesson from success—viz., that they have at last arrived at something like relative perfection. Then, the less successful have also learnt their lessons—lessons which it is self-evident could not have been taught on the test-bench or under any road conditions save those of racing, else the results would have been embodied in their cars and there would have been no failures. Those lessons will, in the nature of things, have their influence in alterations which will make for greater success next year—and so things progress towards the goal of perfection. As we have already said, there does not seem to be any question but that racing is good for the "improvement of the breed," but there is another aspect of this which requires careful thought, and that is the serious one of whether racing is too costly a form of buying the experience. Here again it would seem that this is a matter for the individual to decide for himself. On this point the trade certainly seems to be divided within itself, though there are not wanting signs of a revulsion in favour of the revival of the road race, and it seems to us that the question of once more holding a race in the Isle of Man is one that merits the most serious consideration by the R.A.C. Of the success of such an event, should the Club decide in its favour, there is no room for doubt—we are confident that there would be entries and to spare—and the whole matter seems to resolve itself into one of policy. It is common knowledge that the difficulties in the way of road-racing within these realms are not altogether attendant upon whether or not "the trade" views it with favour, and it is impossible at the moment to say how far those difficulties are surmountable.

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The Motor Vehicle in Parliament.

In spite of Home Rule and Welsh Disestablishment and other weighty matters, time seems to be found in both Houses of Parliament for the bandying of questions affecting the motor car between Ministers and members of all shades of political opinion. During the past week, Capt. Murray has once more found an opportunity of airing his pet grievance of the inconsiderate use of the motor horn. He wants to know this time whether the President of the Local Government Board will issue recommendations to the owners and drivers of taxi-cabs that motor horns should only be used when necessary, to mitigate the public nuisance and the menace to public safety implied in their too frequent use. For once we are in sympathy with the gallant officer, and if by repeatedly worrying the Board he can get the use of the motor horn by the taxi-driver restricted, he will have our cordial thanks. If every warning signal were removed from every taxi-cab in London, we should never hear of a complaint about motor noises, either by day or night, for by far the worst, we had almost said the only, offender is the taxi-driver. But very occasionally now do we observe the driver of a private vehicle make use of his signal unnecessarily, but, on the other hand, the taxi-driver hoots as energetically as though each blast of his horn meant another two-pence in "extras."

In reply to Capt. Murray, Mr. Burns pointed out that such a notice as that referred to in the question had been recently issued by the Commissioner of Police; and, in answer to a further query, the President promised to consider whether he could give facilities for the Bill standing in Capt. Murray's name. This Bill, it will be remembered, seeks to limit the speed of motor vehicles in London and other populous places to sixteen miles an hour. It will be well to keep an eye upon its future.

In the House of Lords, the Duke of Rutland wants to have the speed of motor cars in London reduced to fifteen, or even twelve miles an hour. In no village in the country, says his Grace, ought motor cars to be driven at more than ten miles an hour, but he concedes that in the open country, where there is no danger, the limit might well be raised. We are becoming so tired of this craving for the imposition of arbitrary speed limits. We really do not know how many times during the past fourteen years we have had to deal with this self-same question or how many times we have tried to drive home the truism that speed does not of necessity

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connote danger, nor does a walking pace necessarily mean absolute safety. One of these days everyone will recognise this elementary proposition, and then part at least of our occupation will be gone. Viscount Allendale, who replied to the Duke on behalf of the Government, agreed as to the villages, but did not think that a low speed-limit would make London any safer—at which we are inclined to smile audibly! If in London the practical limit of speed is set by the circumstances ruling at the moment, then why should not the same excellent rule suffice all round? We give it up. One item of information Lord Allendale did vouchsafe—and that is, that the Government does not at present contemplate motor car legislation. For this much thanks, for delay is altogether in the motorists' favour. He added, however, that the evolution of the motor car was being watched by the authorities, and no doubt some fresh legislation would have to be brought in before long to consolidate the existing Acts and minimise the danger which grew up with this traffic. So that it is evidently a case for the motoring organisations to watch carefully and to keep their powder dry.

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"Scout Law." Yet another case has cropped up of the legality of warning motorists of the existence of a police-trap. In this case one of the A.A. patrols was fined by the Lewes Bench for obstructing the police by posting himself outside the measured distance, and informing the drivers of approaching cars of what awaited them. According to the police evidence, it was alleged that he stopped about a dozen cars, "some of which were proceeding at a dangerous pace before the warning was given." Herein seems to lie the whole crux of the matter. If we understand the decisions bearing on this class of obstructive offence, it is necessary for the magistrates to be satisfied that the cars warned were in fact breaking the law at the time of the warning. Whatever our opinions may be as to the wisdom or otherwise of the speed law, the fact remains that that law is as it is, and must, in theory at least, be observed. Therefore, it would seem on the face of it that to warn an offender in order to save him from the consequence of his law-breaking is a constructive offence, and must carry its consequences with it. In any other class of case save those connected with the driving of motor vehicles, we should be content to admit the justice of the argument implied. In fact, we do not quarrel with the proposition as it stands, but rather with its application, or possible application in certain notorious districts. It is beyond all question that in parts of the country prejudice against the car is still rampant, while in others the local police and magisterial authorities are out to make all they can out of the disproportionate fines levied upon the passing motorist. It is in places such as we have in mind that the reading of the law as interpreted by the decisions is likely to breed hardship and injustice. In order to convict of obstructing the police the Bench hearing the case must be "satisfied" that the law had been broken by the people warned—and we imagine that not a few country Benches of our acquaintance would require very little indeed to "satisfy" them on this point. In fact, we should say that it would need a great deal of very hard swearing to convince them that the law had *not* been broken. This is certainly one of the points which must be fully discussed when the Bill which is to be looked after jointly by the R.A.C. and the A.A. comes before Parliament—if ever it does.

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The Inconsiderate Tourist. In the current "Report of the Week" issued by the R.A.C. there appears a paragraph which is well worth quoting in full. It reads as follows:—

"Despite the fact that complaints concerning the inconsiderate driving of motor vehicles are far less frequent than they were some years ago, there is still in existence one class of motorist whose conduct, regrettable as it is on account of its immediate effects, reacts to the prejudice of other car and motor cycle drivers, who, however considerate they may themselves be, are made to suffer for the misdeeds of the black sheep. We refer to the motorist who appears to consider that, once away from his 'Native Heath,' in other words, once removed from the ken of his own county constabulary, he is justified in altering his (previously correct) demeanour and in proceeding as though other road-users did not exist. Of course, such a view of his obligations is about as erroneous as it can be, for in strange country one should be doubly cautious, since hidden dangers may abound, and, though may seem plain sailing, there may be very urgent need for the exercise of care."

There does not seem to be any need for us to comment upon this; it is too thoroughly self-explanatory to need amplification, and may, therefore, be allowed to stand as it is.

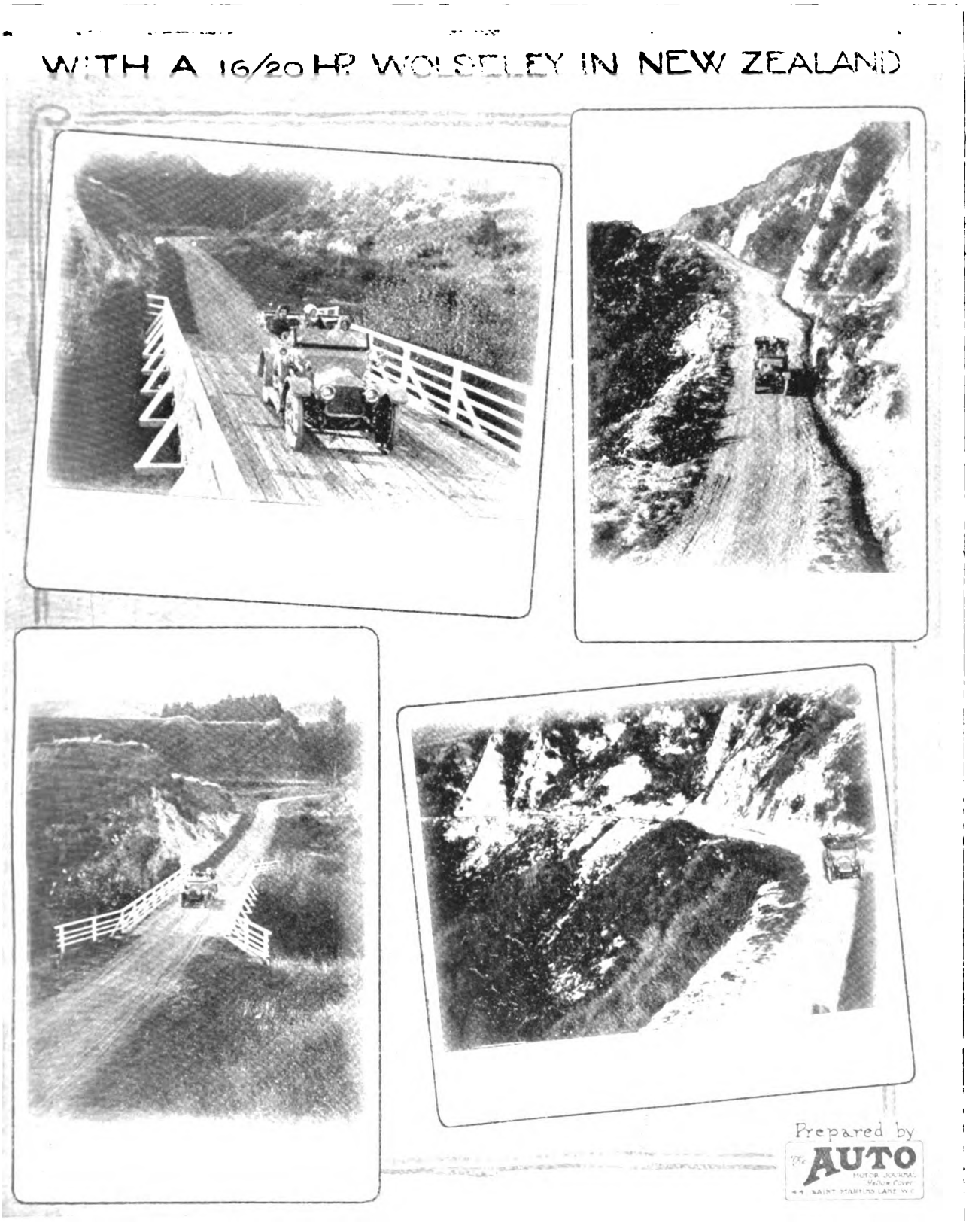
More or less arising out of the same question of the inconsiderate driver, we would direct the particular attention of our readers to a letter from Major Plant, asking, now that the Territorial training season is in full swing, that motorists should exercise special consideration when passing troops on the march. We are quite sure that the request is all that is necessary to secure due observance of all the amenities which, we believe, are generally broken more through thoughtlessness than wilful desire to inconvenience or annoy. There is just one point in Major Plant's letter to which we rather take exception. It seems to us to be a little gratuitous to comment upon and advise as to the best kind of driver for the car owner to employ, for that is what his closing sentences mean, if they mean anything at all. We will cheerfully concede that the ex-coachman usually makes an excellent driver, but we cannot agree that all drivers but those who have served their apprenticeship with horses are necessarily road-hogs. As a matter of fact, the driver in private employ has, as a class, undergone a great deal of improvement during recent years, and is now, on the whole, a thoroughly good man and reasonably considerate. There are black sheep among the mechanic-drivers, no doubt, as there are among owners who drive their own cars, but they are not at all in a majority.

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For Accessories see Illustrated Directory weekly.
For all Cars and Addresses see Directory weekly.

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With the Camera and the Car.



THE CAR IN NEW ZEALAND.—A few snapshots taken on a trip on a 16-20-h.p. Wolseley from Cheviot to Christchurch, N.Z. The views are very characteristic of the country, the scenes being in "Brown's Cutting" and "Greta Cutting."

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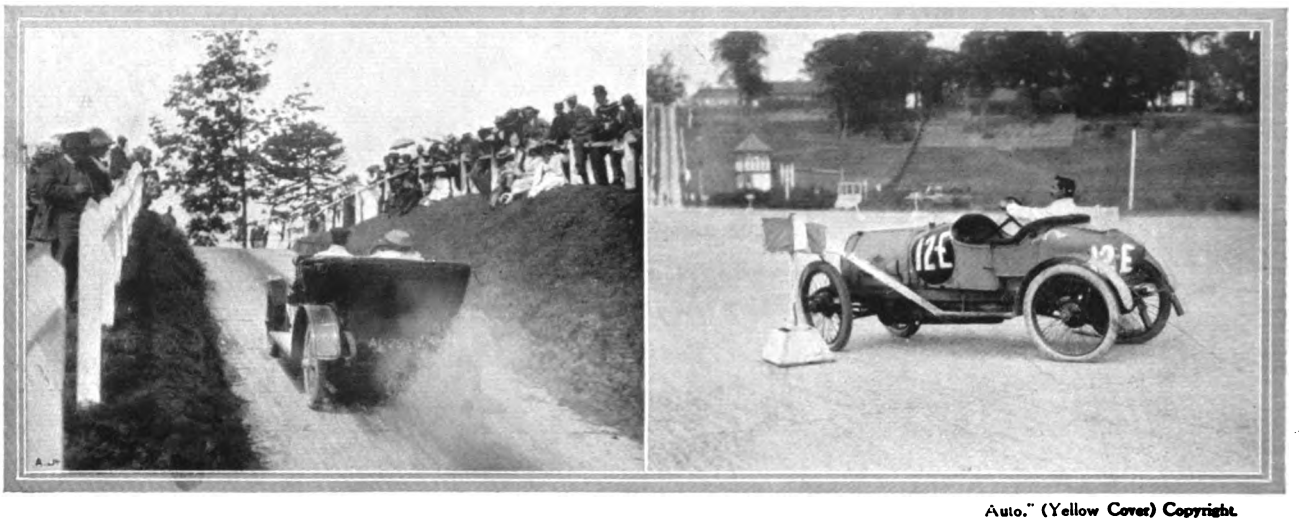
R.A.C. ASSOCIATES DAY AT BROOKLANDS.

MEMBERS AND ASSOCIATES SPEND A PLEASANT AFTERNOON AT BROOKLANDS AND ENJOY FINE SPORT AND PLENTY OF FUN.

THERE was but a sprinkling of spectators present when the programme for the inter-club meeting and gala-day of the Royal Automobile Club and its Associated Clubs opened at Brooklands on Saturday punctually at two o'clock. But as the afternoon grew older the sun, which had been hidden behind threatening rain clouds, managed to peep through, a good breeze kept the clouds moving and spectators arrived in their thousands. Indeed soon after three o'clock a large and very enthusiastic crowd filled the slopes of the enclosures and the paddock. It was a crowd distinctly different in character from that we are used to find on ordinary race days. They seemed to take a keener and more personal interest in everything that was going on and they were not lacking in genuine approbation, which in most cases was well deserved.

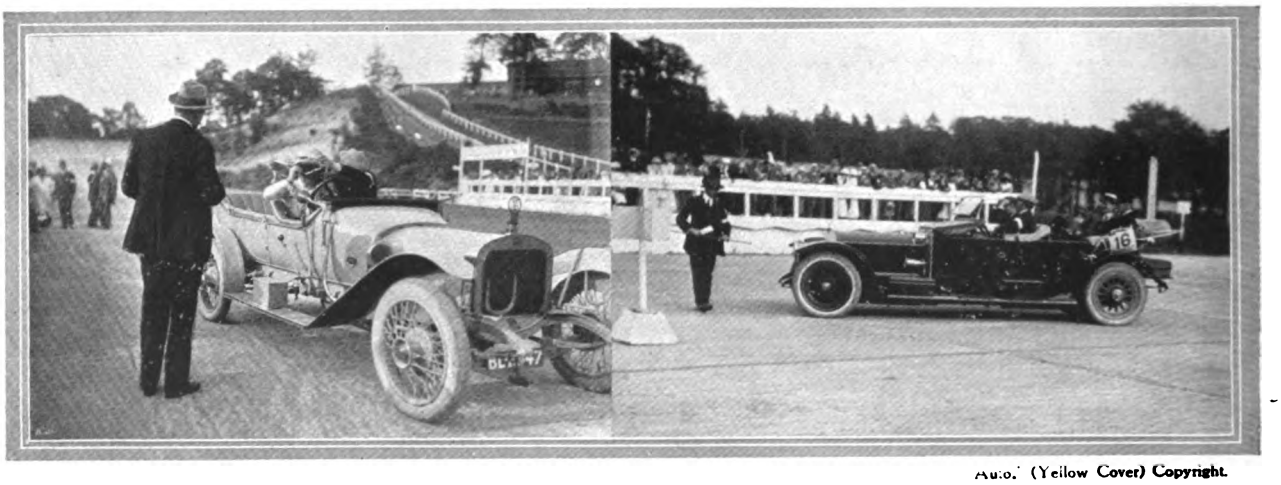
A stroll through the spectators' car enclosure was indeed interesting. There, every type of self-propelled vehicle could be found; a 12 years' old Arrol-Johnston dog-cart with its high back wheels and solid tyres stood peacefully next to a Rolls-Royce limousine of the very latest and most luxurious type, and a little further on a "four-inch" Humber racer was seen by the side of Mr. D. Resta's victorious 3-litre Sunbeam racer. There also seemed to be a good many visitors from foreign lands present. We noticed quite a number of cars carrying the international "F" plaque of France, two displayed the "D" of Germany, and one at least Italy's "I."

Nor were all these people, many of whom had come long distances, disappointed in their expectations; for, both, the serious sport as well as the fun that were provided by the ten events of the long programme were of the very first order. In the speed races the handi-



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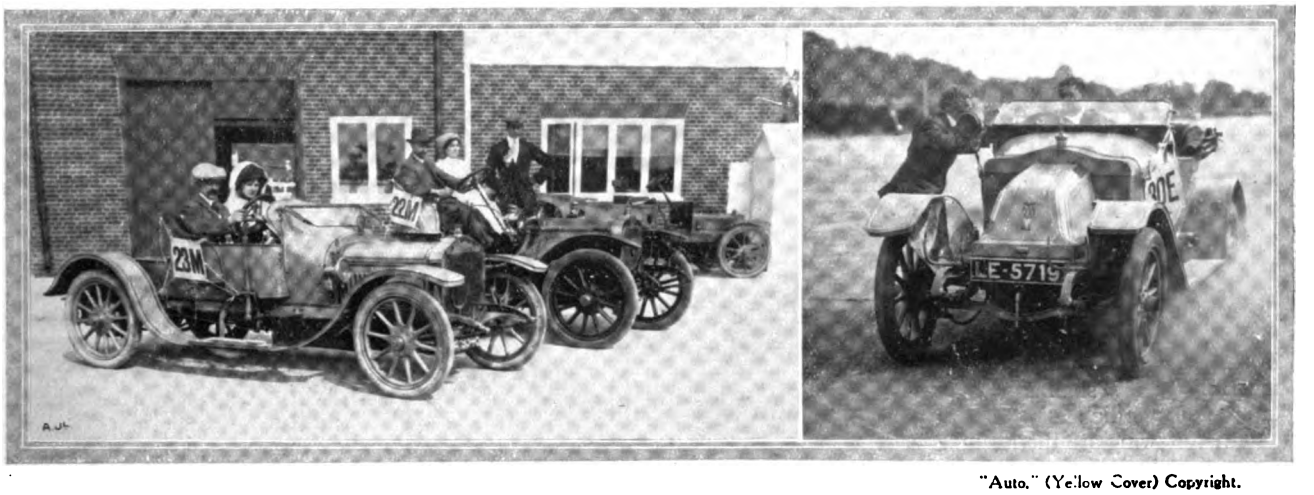
R.A.C. ASSOCIATES AT BROOKLANDS IN THE SKILFUL DRIVING RACE AND HILL-CLIMB.—On the left Miss Laura B. Starkey on her 15·9-h.p. Sunbeam, who secured second place in the race, ascending the test hill. On the right Mr. S. G. Cummings' 13·9-h.p. Crespelle car.



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R.A.C. ASSOCIATES AT BROOKLANDS.—In the Blindfold Driving Competition. On the left Mrs. Hippisley on her 20·1-h.p. Sunbeam undergoing the process of being blindfolded. On the right Mr. Eric Loder, who was second in the race, driving his Rolls-Royce car.

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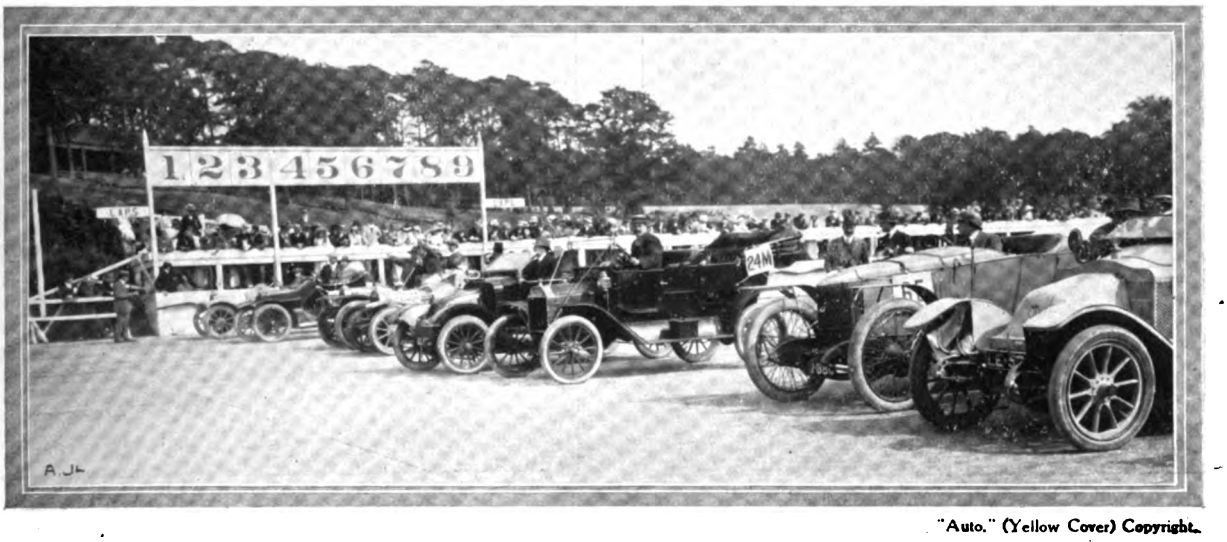
R.A.C. ASSOCIATES AT BROOKLANDS.—The Relay Race. On the left the Middlesex team, the winning club, comprising Mr. W. J. Jones' 18·8-h.p. Straker-Squire and Mr. H. W. Toler's 25·3-h.p. Talbot. On the right Mr. G. D. Pearce Jones handing the badge to his team partner, Mr. O. D. Pollak, on his 15·9-h.p. S.C.A.R., this team securing second place for the Essex Motor Club.

capping was excellent, with the result that there was a highly exciting finish to every race, and the other competitions were carried out in such a manner that everybody could see and enjoy them.

Eight different contests were contained in the original programme, and all had filled well. The Motor Cycle Short Distance Handicap, in fact, had produced no less than 43 entries, so that it was necessary to run it off in two heats and a final, thus bringing the number of events up to ten, including the Aviation Bomb-Dropping Competition.

One of the most pleasing features of the afternoon was the relatively large number of lady competitors and the very splendid way in which they "showed off." There was Miss Muriel Thompson on the Austin "Pobble," a car that has not been seen for a long time on the track and which she handled with infinite skill in the first event, especially on the hill. According to our own timing she ascended this in $9\frac{1}{5}$ secs. Miss Laura B. Starkey, a member of the Hampshire A.C., was doing very well on her five-seated 15·9 Sunbeam, gaining second place in the skilful driving race and making third fastest time in the hill-climb with $11\frac{3}{5}$ secs. Mrs. Hippisley on another Sunbeam was less fortunate.

The two pure speed events on the programme, the All-Comers' Handicap and the Motor Cycle Handicap provided excellent sport and exciting finishes were witnessed. Mr. Malcolm Campbell succeeded in winning the former on his 59·6 Darracq from scratch at a speed of $82\frac{1}{2}$ m.p.h., while the latter was annexed by Mr. Harry Reed on a twin-cylinder Dot machine, also from scratch, at the terrific speed of nearly 73 m.p.h.; he had also won the second heat of the same race. Mr. S. G. Cummings, on his Crespelle, was again persecuted by his usual bad luck—it was a burst tyre this time; and we wonder what will be the next thing to stop this very fast car, driven by an enthusiastic and skilful driver, from coming home a winner. The hill-climb, as our illustrations show, proved a great attraction, and fine form was shown by both cars and drivers. Unfortunately for the drivers it was a team event, so that the performances of individual cars do not stand out so prominently in the final result. Mr. G. D. Pearce Jones on his Prince Henry Vauxhall, or Lord Exmouth on his Hispano-Suiza, roaring up the



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R.A.C. ASSOCIATES AT BROOKLANDS.—The start for the Relay Race.

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hill at an average speed of 26¾ m.p.h., will not easily be forgotten by the spectators.

The last event for cars, the Blindfold Driving Competition, for which cars had to be entered at the post, produced 31 competitors, and was won by Mr. A. J. Dreydel on a 6-h.p. Ivy Jap with side-car, who after skilfully turning his machine made straight for the winning post, and, so as to leave no doubt in the matter, clean knocked it down. Mr. Eric Loder on a very fine Rolls-Royce was second, stopping only a few feet away.

When Mr. J. W Orde distributed the prizes at 6.30 the winners and spectators freely expressed their satisfaction at the very enjoyable afternoon, and were profuse in their recognition of the splendid organisation of the meeting. "We shall all come again next year," was the unanimous verdict.

The following are the results :—

Skilful Driving Race and Hill-Climb.—For motor cars entered and driven by a member or associate of the R.A.C. ; winner to receive the Yorkshire A.C. cup ; the second a silver Herkomer medal, and the third the bronze medal. The first car entered and driven by a private competitor to receive the Hampshire A.C. cup.

		Time m. s.
1.	Mr. Rowland Winn (22·4-h.p. Ford)	1 51⅕
2.	Miss Laura B. Starkey (15·9-h.p. Sunbeam)	2 4
3.	Mr. J. E. Williamson (15·9-h.p. Sunbeam)	2 17

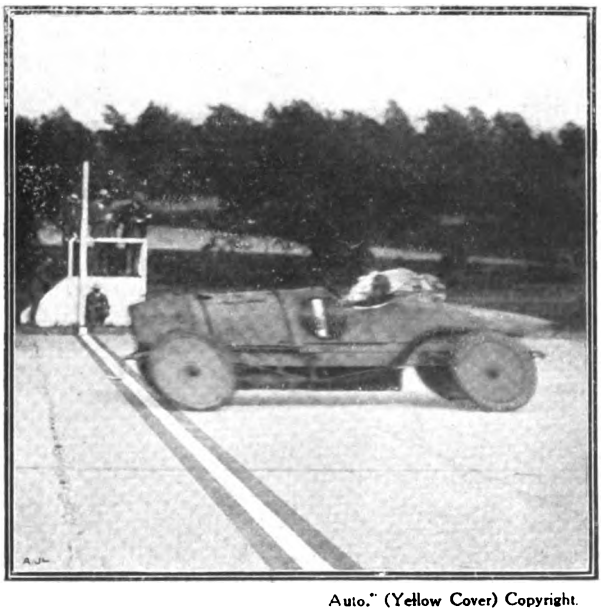
Some fine driving was seen during the event. The "garage" into which the cars had to be backed proved the undoing of many competitors. Miss Muriel Thompson on the Austin "Pobble" was very unfortunate in just touching one of the obstacles with the car's racing tail, otherwise she drove splendidly.

Motor Cycle Short Distance Handicap.—Distance 5¾ miles, for cycles of less than 1,000 cc. capacity. Winner to receive *Motor Cycle* cup ; second, third and fourth also to receive a cup.

First Heat.

		Capacity. cc.	Start. m. s.
1.	S. F. Garrett (Green-Precision)	499	0 56
2.	H. P. Beasley (Singer)	299	2 22
3.	R. E. Guest (Matchless)	726	0 34
4.	R. G. Parker (Enfield)	349	2 10
5.	W. A. Jacobs (Singer)	299	1 56
6.	D. C. Bolton (Rudge)	499	0 40
7.	F. G. Flanders (Rudge)	499	1 16
8.	J. Southgate (Matchless)	482	1 6

Fine race, Garrett beat Beasley almost on the line, 50 yards between second and third, the next five machines came all in a bunch. Winner's speed 64¼ m.p.h.



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R.A.C. ASSOCIATES AT BROOKLANDS.—Mr. Malcolm Campbell winning the All-Comers' Handicap from scratch on his 59·6-h.p. Darracq.



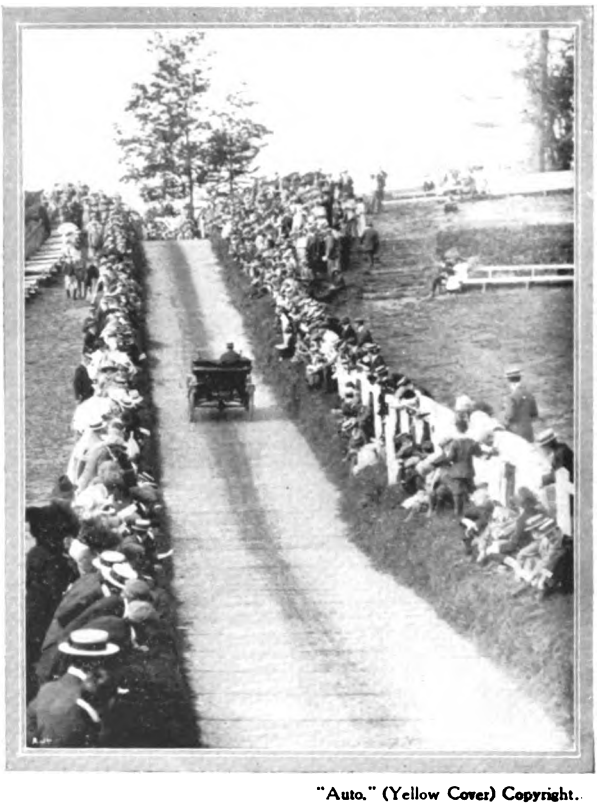
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R.A.C. ASSOCIATES AT BROOKLANDS.—Miss Jones backing away after trying issues with the fence in the Blindfold Driving Competition.

Second Heat.

1.	Harry Reed (Dot)	997	0	12
2.	H. C. Mills (Regal-Precision)	499	0	56
3.	S. L. Bailey (Douglas)	345	0	56
4.	W. Gordon Fowler (Rudge)	499	1	16
5.	E. A. Colliver (Zenith)	499	1	6
6.	H. Martin (Martin)	345	0	56
7.	A. Brunton (Bat)	738	0	38
8.	Glynn Rowden (Triumph)	499	1	6

Runaway win for Reed, the scratch man, by the length of the



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R.A.C. ASSOCIATES AT BROOKLANDS.—Watching the climb of the test hill, the car just going up the hill being Mr. E. J. Everett's Ford.

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straight. Almost dead heat between second and third. Winner's speed 73 m.p.h.

Final.

1. Harry Reed (Dot)
2. H. P. Beasley (Singer)
3. S. F. Garrett (Green-Precision)

" Reed won by a considerably smaller margin than in the second heat at a speed of 71¾ m.p.h.

Relay Race.—For teams of two cars, distance 5 miles. To the first team, *The Autocar* cup and "Brooklands Cups" to the drivers, a silver Herkomer medal to the second team, and bronze medals to the drivers.

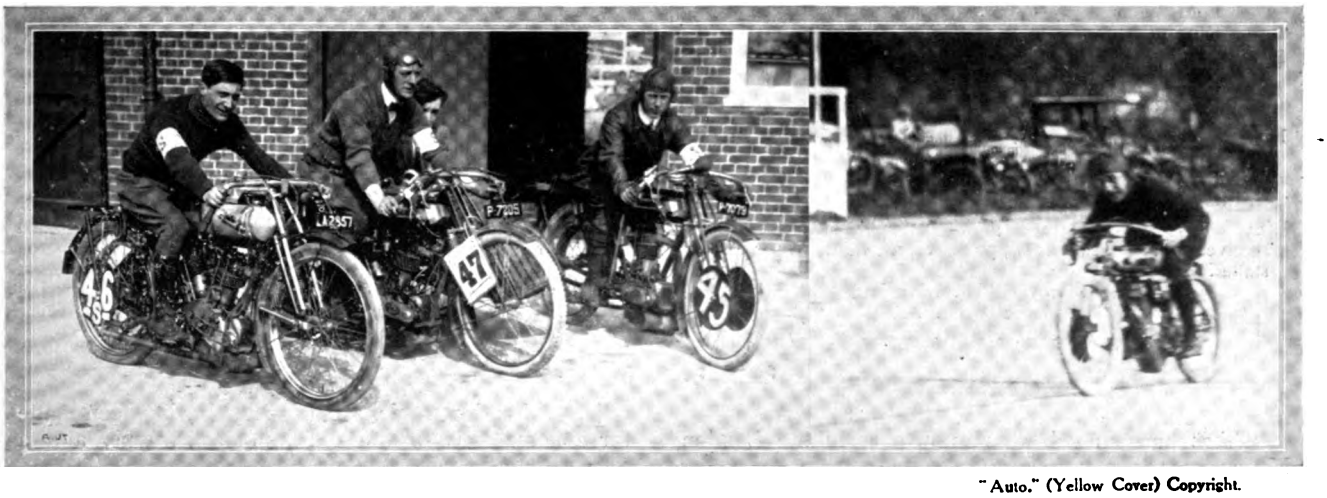
1. Middlesex County A.C. (1st team).—Harry W. Toler (25·3-h.p. Talbot), Harry J. Jones (18·8-h.p. Straker-Squire).
2. Essex M.C.—G. D. Pearce Jones (20·1-h.p. Vauxhall), O. D. Pollak (15·9-h.p. S.C.A.R.).
3. Hampshire A.C.—Capt. A. Duka (15·9-h.p. Austro-Daimler), H. C. Lafone (15·9-h.p. Chenard-Walcker).

Essex were hot favourites, and Pearce Jones' Vauxhall gained a long lead in the first round. But Pollak's S.C.A.R. was badly out of form, and lost at the finish to Jones' Straker (Middlesex A.C.).

Motor Cycle Inter-Club Team Race, distance, 5¾ miles.—For teams of three motor cycles, entered by clubs affiliated to the A.C.U. Each team consisted of one single cylinder machine up to 500 cc., one multi-cylinder machine up to 750 cc., and one passenger machine up to 1,000 cc., all standard touring machines fully equipped for the road. The entrants were given marks according to their relative finishing positions, and the winning club, was the one whose three riders together obtain the least number of marks. The club whose team wins to receive a trophy, and each member of the team the silver Herkomer medal. Each member of the second team to receive the bronze medal.



Interested spectators at the Test Hill-Climb at the R.A.C. Associates' Brooklands Meeting.



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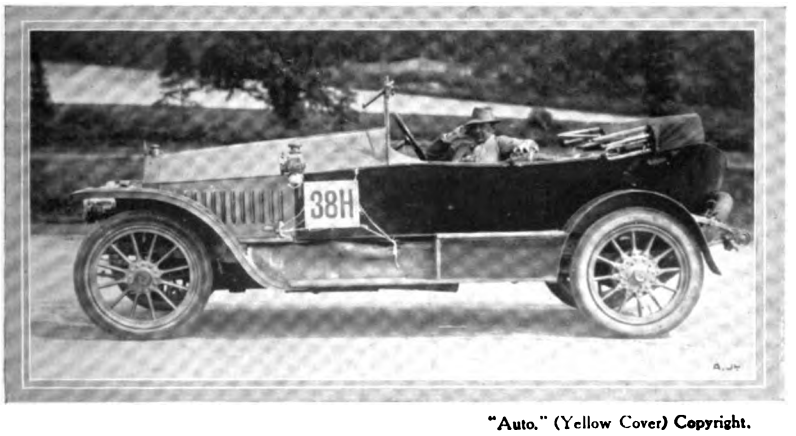
R.A.C. ASSOCIATES AT BROOKLANDS.—On the left the winning team of the Motor Cycle Inter-Club Team Race, the Streatham and District M.C.C. From left to right, S. T. Tessier (5-h.p. Bat-Jap), F. W. Barnes (7-h.p. Zenith-Gradua), P. Weatherhilt (3½-h.p. Zenith-Gradua). On the right Mr. Harry Reed winning the Motor Cycle Short Distance Handicap on his 2-cyl. "Dot" machine.

1. Streatham and District M.C.C.—P. Weatherhilt (3½-h.p. Zenith-Gradua), S. T. Tessier (5-h.p. Bat-Jap), F. W. Barnes (7-h.p. Zenith-Gradua).
2. Nottingham and District M.C.C.—J. D. Mitchell (3½-h.p. Rover), R. A. Johnson (6-h.p. Matchless), A. E. Lole (8-h.p. Campion-Jap).
3. Mersey M.C.—V. Horsman (3½-h.p. Singer), V. E. Freestone (6-h.p. Rex), Harold Grove (8-h.p. Chater Lea-Jap).

This was the only scratch race of the day and splendidly contested. Tessier (Streatham and District) was the first man home, fully a mile in front of Johnson (Nottingham and District); Harry Reed, on Dot (Mersey), was third, and Barnes, on Zenith, with sidecar and passenger, fourth; a fine performance indeed. Winner's speed 67 m.p.h.

All Comers' Open Handicap, distance 8½ miles.—Winner to receive *The Car Illustrated* cup. Cups for second and third.

1. Malcolm Campbell (59·6-h.p. Darracq) scratch
2. C. L. E. Geach (15·9-h.p. Singer "Bunny") 0 30
3. J. Lacon (15·9-h.p. Gregoire) 1 12
4. Percy Lambert (19·6-h.p. Austin "Pearley III") 0 30



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R.A.C. ASSOCIATES AT BROOKLANDS.—Mr. N. S. Hind on his 24·5-h.p. Berliet, with its polished mahogany, a very fine specimen of wood bodywork. Mr. Hind's car formed one of the winning team (Hampshire A.C.) in the hill-climb.

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Mr. Campbell had to make up a great deal of headway. The limit man almost completed his first lap when the scratch car started, but the Darracq did itself credit and overtook the whole field in fine style, finishing a winner by 50 yards. The Austin "Pearly" and the Singer "Bunny" started level and had a fine tussle between themselves. Pearly was leading for the first two laps, but was then overtaken by Bunny on the hill. The latter managed to hold the lead, and finished second, with the Austin only a short way back. It was "the" race of the day. Winner's speed 82½ m.p.h.

Hill-Climb.—For teams of four standard motor cars with touring bodies, the combined R.A.C. rating not exceeding 100, entered by associated clubs. The winning team the one whose cars occupied the least aggregate time in ascending the hill. The club whose team wins to receive the Associated Clubs' cup, and each member of the team the silver Herkomer medal. To the second team a silver cup, and each member of the team the bronze medal. To the owner of the car which makes the fastest time, the cup presented by Mr. Charles Braun.

1. Hampshire A.C.—H. C. Lafone (15·9-h.p. Chenard-Walcker), 13⅜ s.; N. S. Hind (24·5-h.p. Berliet), 13⅛ s.; Miss Laura B. Starkey (15·9-h.p. Sunbeam), 11⅜ secs.; Capt. A. Duka (15·9-h.p. Austro-Daimler), 16⅝ s. Total, 55⅞ s.
2. North Berkshire A.C.—Capt. F. C. Loder Symonds (32·2-h.p. Cadillac), 18⅝ s.; Mrs. Hippisley (20·1-h.p. Sunbeam), 14 s.; Lord Exmouth (15·9-h.p. Hispano-Suiza), 9⅘ s.; H. A. Barrett (22·4-h.p. Hotchkiss), 20 s. Total, 62⅔ s.
3. Middlesex County A.C.—Harry W. Toler (25·3-h.p. Talbot), 14 s.; H. Fitch (11·8-h.p. Arrol-Johnston), 17⅞ s.; E. T. Everett (22·4-h.p. Ford), 19⅗ s.; W. J. Jones (18·8-h.p. Straker-Squire), 14 s. Total, 65 s.

Fastest Time.—Essex M.C.—G. D. Pearce Jones (20·1-h.p. Vauxhall), 9 s Speed, 26·7 m.p.h.

Again the Essex team were favourites, but lost through one of their cars failing to reach the top of the hill.

Blindfold Driving Competition.—A sweepstake. Winner to receive 60 per cent.; second, 30 per cent.; third, 10 per cent. of stakes.

1. A. J. Dreydel (6-h.p. Ivy-Jap)
2. Eric Loder (40-50-h.p. Rolls-Royce)
3. L. W. Cox (18·8-h.p. Straker-Squire)



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R.A.C. ASSOCIATES AT BROOKLANDS.—Mr. H. W. Norman, the energetic Secretary of the R.A.C. Associates, busy taking entries for the Blindfold Driving Competition.

Much amusement was caused by the antics of the blindfolded drivers of either sex. Miss Muriel Thompson, after turning the Pobble round, passed very near the winning post, but went on stopping half-way up the finishing straight. Some tried knocking down the judges' box, and Mr. Julian Orde narrowly escaped being run over by Mr. Hornsted on the Mass.

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More Relics for the London Museum.

THE hansom cab which now rests in the London Museum is to have by way of companionship two other relics of London traffic, arrangements having been made for a horse 'bus of the old knife-board type, and a "growler" to be placed on view.



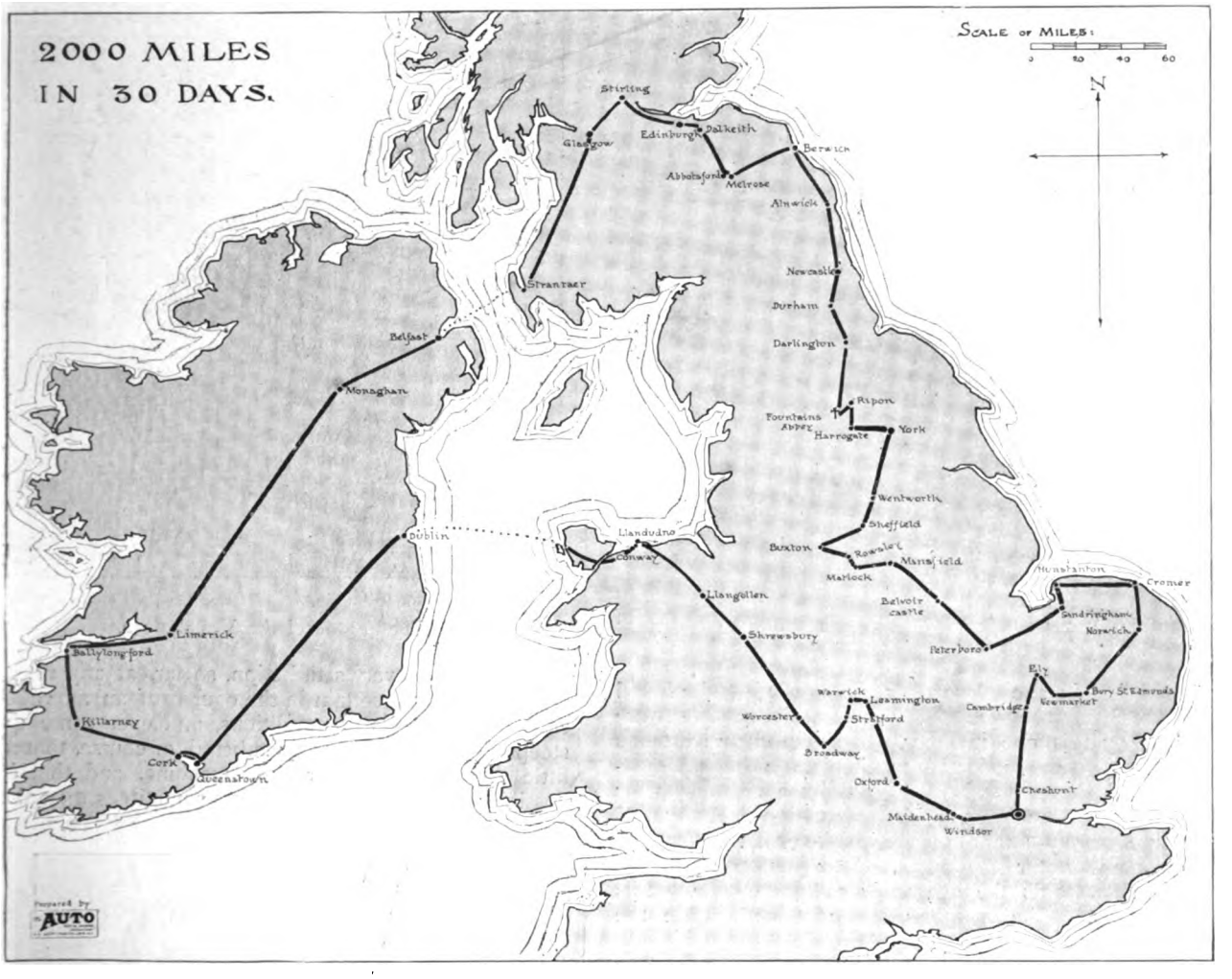
"TO WHAT BASE USES," &c.—A quaint scene at Leigh Beck, Canvey Island, where an enterprising individual has established a "'Bus Ville" with the help of a few old London horse 'buses. These have been placed upon a piece of land in Canvey Island, and here holiday folk may hire a 'bus residence for a week-end or longer period, and enjoy (?), more or less, the pleasures of the simple life. The idea of utilising the upper deck and decorating it as an old building is distinctly quaint.

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A THIRTY DAYS' TOUR IN ENGLAND AND IRELAND.

FOLLOWING upon the AUTO. tour suggested in a recent issue, the Hertford Street Motor Hiring Company, who do an exceedingly large business in the hiring of Napier cars to American visitors and others who desire to tour England, send us the following itinerary, which they have found to be very popular. It accomplishes some 2,000 miles in about thirty days and includes a good circuit in Ireland, which country most Americans have a strong desire to see.

In order to illustrate the tour more effectively we have prepared the accompanying key-map of the route.



Itinerary.	Miles.		Miles.		Miles.		Miles.		Miles.
London	—	Belvoir Castle ...	301	Darlington	589	Stranraer ...	928	Shrewsbury ...	1,766
Cheshunt	14	Mansfield	335	Durham	608	Monaghan ...	1,006	Worcester	1,825
Cambridge ...	53	Matlock	398	Newcastle-on-Tyne ...	623	Limerick ...	1,176	Broadway	1,845
Ely	69	Rowsley	404	Alnwick	655	Ballylonford ...	1,217	Stratford-on-Avon	1,861
Newmarket ...	84	Buxton	424	Berwick-upon-Tweed	685	Killarney ...	1,266	Warwick	1,868
Bury St. Edmunds	98	Sheffield	460	Melrose	724	Cork	1,396	Leamington ...	1,870
Norwich	139	Wentworth	470	Abbotsford	727	Queenstown ...	1,411	Oxford	1,921
Cromer	165	York	508	Dalkeith	759	Dublin	1,601	Maidenhead ...	1,967
Hunstanton ...	205	Harrogate	532	Edinburgh	766	Conway	1,680	Windsor	1,976
Sandringham ...	214	Ripon	542	Stirling	794	Llandudno ...	1,685	London	2,001
Peterborough ...	257	Fountain's Abbey ...	546	Glasgow	842	Llangollen ...	1,739		



House of Lords and Trailer Tramcars.

ALTHOUGH evidence was once more given by the Metropolitan Police condemning the proposal of the London County Council to run trailer tramcars, a Select Committee of the House of Lords have passed the clause in the Bill in which the L.C.C. seek powers to run them.

There are limitations, however, and they will only be permitted on the tramways south of the Thames and over Westminster and Blackfriars Bridges and along the embankment and over Vauxhall and Battersea Bridges. When the Bill comes up for its third reading in the House of Lords, Lord Montagu will move the rejection of the clause. May he succeed!

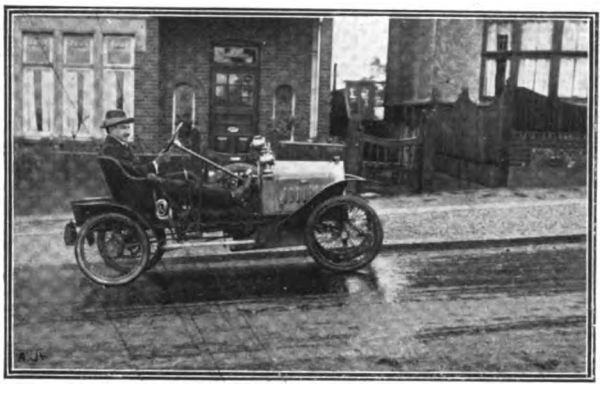
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POINTS FOR THE BUYER.

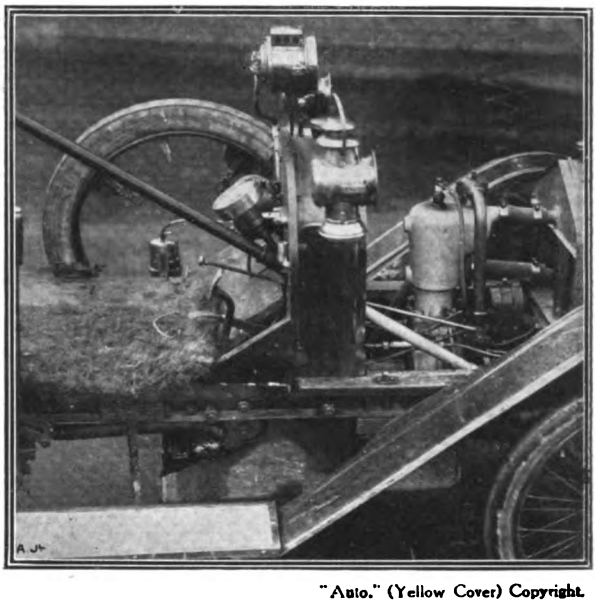
FROM time immemorial the hundred guineas car has represented something approximating to the ideal in the eyes of the proverbial man of moderate means. Nevertheless, attempts that have hitherto been made to satisfy this want have scarcely been characterised by an extraordinary success, and so each new machine of the class that is put on the market serves to arouse an interest that is ever fresh. Thus, with the Violette, for which Messrs. Morgil, Ferjac, Ltd., of 13, Grape Street, Shaftesbury Avenue, are the sole concessionaires in this country. This is a machine that is offered at the inclusive price of £105 complete with a sporting two-seated body and a luggage carrier behind.

Mechanically, it is characterised by several features of interest, notably a friction drive, which is situated behind the engine in the place where ordinarily is to be found the clutch and the gear-box, both of which purposes are served by this one member. A single chain transmits the power from the friction mechanism to the solid rear-axle, and the power is developed by a single-cylinder engine cooled by thermo-syphon circulation. A Claudel carburettor supplies the mixture, while an U.H. magneto is responsible for the spark. Our illustration shows better than words the accessibility of the engine and its accessories. The fly-wheels are contained inside the crank-case, wherein the shaft is lubricated by splash system from a tank on the dashboard, which feeds the oil under gravity. Similarly, the petrol tank is also on the dashboard, so that the fuel flows to the carburettor without the aid of pressure.

Some readers may shake their heads at the mention of the friction drive, but we can only say that in this case it appears to give every satisfaction, so far, at any rate, as we were able to ascertain in the course of an afternoon's run under all kinds of conditions, and over some quite steep hills. It must be remembered, of course, that this little car is essentially a light machine, and that it is possible under such circumstances sometimes to make a

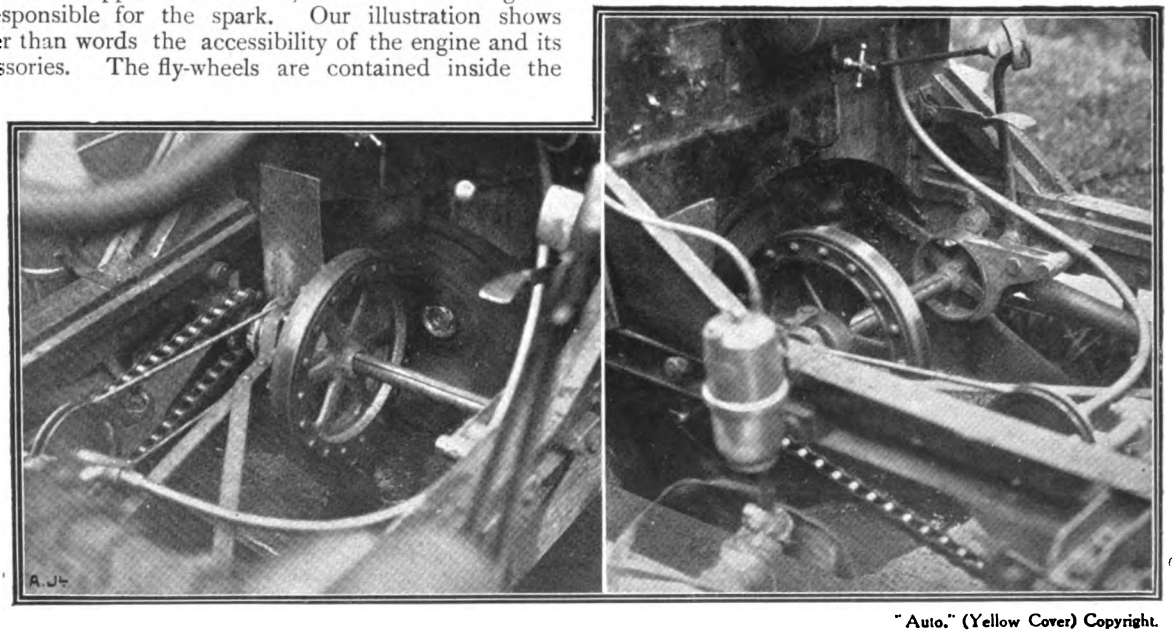


The little Violette car on the steep North-Side gradient of Streatham Common.



"Auto." (Yellow Cover) Copyright.

The engine of the Violette car.



"Auto." (Yellow Cover) Copyright.

Views showing the friction wheel (on the left) and the foot brake and pedals (on the right) on the Violette car.

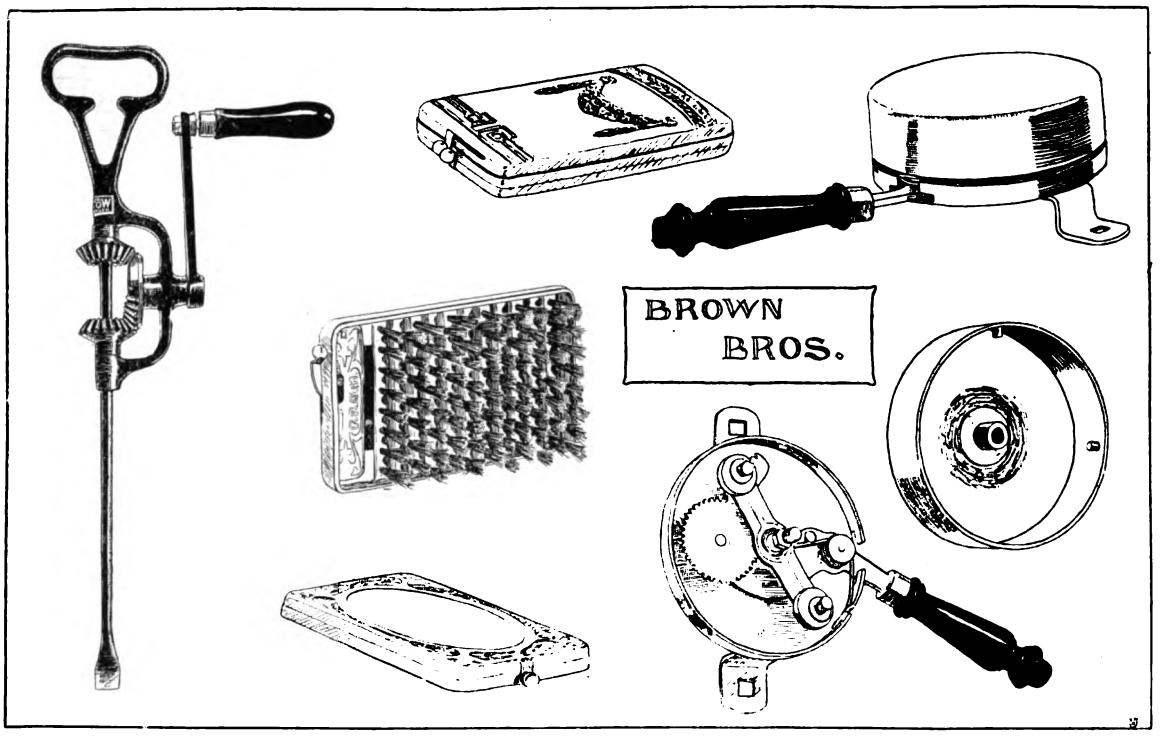
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successful job of a mechanism that baffles heavier engineering. If there is one point where we should like to suggest a possible improvement, it is that the ignition should be hand-timed; this would cost little, and would in our opinion add greatly to the service of the car. In any case, let us put it up to the buyer to order it as an extra. For the rest, the car runs very nicely indeed, and fast enough to cost the driver more money in fines than upkeep if he is careless of his environment. The car is, moreover, well sprung and comfortable, but for those who want something more elaborate than the standard body there is another body that can be obtained complete with wind-screen and hood for £125. There is every reason, therefore, why the many hundreds of people who are on the look out for the hundred guineas car should wend their way to Grape Street to see the Violette.

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ACCESSORIES OF THE WEEK.

AT the present time, horns as warning signals seem, for some reason or other, to be out of fashion, and the number of substitutes for the old bulb horn that have been marketed lately is surprising. Quite a large percentage of these are designed to give very weird noises, which while they certainly do clear the road, do not do anything to promote brotherly love between motorist and pedestrian. Messrs. Brown Brothers, of Great Eastern Street, who already sell one of the finest warning signals in the world, to wit, the Gabriel Horn, have recently brought out an inexpensive motor alarm in the form of a gong, which



we illustrate above. The external appearance of this article is pleasing, and the fact that the works are merely an enlarged addition of the mechanism of an ordinary centrifugal cycle bell, is an advantage rather than otherwise. This gong is usually most conveniently fitted on the inside of the dummy door to the right of the driver's seat, where it is easily operated by a to-and-fro motion of the handle. It could probably also quite simply be arranged to be operated by a pedal.

THE same firm are marketing at the popular price of half a guinea the Warrow valve-grinder, which is also illustrated. While not, perhaps, so good in theory as the Ashcroft valve-grinder, sold by the same firm, and illustrated in one of our Show numbers last year, the action of this little instrument seems to be quite satisfactory in practice. The one disadvantage that may be urged against the Warrow type of grinder is that owing to the fact that the valve is rotated on its seating exactly the same distance either way, there is some slight chance of scoring through always working on the same spot. This, as readers will probably remember, is avoided in the Ashcroft grinder by so designing the gearing mechanism that while reciprocating the valve also actually revolves. But this effect can be produced with the Warrow by slowly turning the whole instrument by means of the left hand, which grasps the top, or by giving it a half revolution every now and then, and operating it with the right and left hand alternately.

THE little folding pocket brush shown in the sketch, has been a pocket companion of inestimable value during the last month, and in view of the fact that it bears upon it the mystic letters D.R.G.M., has surprised everybody with its strength, and the durability of its finish. The illustrations show its construction and operation so well that it is unnecessary to give any detailed description other than to say that it is a really useful little article, and that the bristles are sufficiently stiff and well secured to warrant its sphere of usefulness being quite an extended one.

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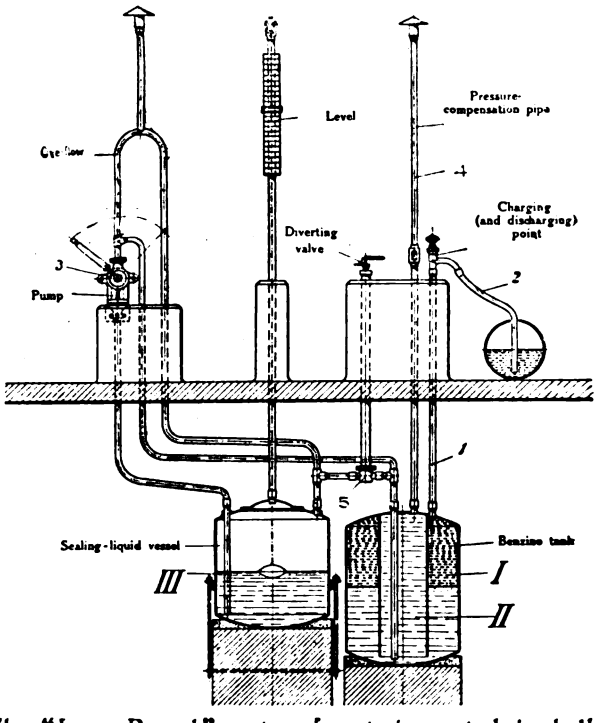
SAFETY IN PETROL STORAGE.

THE Julius Pintsch Co., of Berlin, are specialising in a safety storage system—the "Lange-Ruppel"—for petrol, which should be of considerable interest to all large depôts where inflammable liquid of this character is held in bulk, yet must be available at all times for supply in small quantities. The general principle involved is that of using an underground reservoir that is always full of water and petrol. The water does not mix with the petrol, consequently it can be used as a sealing liquid.

The accompanying diagram illustrates the operation of the system. The tank, I, is the main reservoir, and contains an interior compartment, II, that is always full of the sealing liquid, which overflows into tank I, so that the petrol floats upon its surface. The petrol is delivered from this tank through the pipe, 1, when the water rises in the reservoir under the action of the pump, 3. Adjacent to the main reservoir is a water-tank, III, containing the overflow from the chamber, II, when the main petrol reservoir is full of fuel. The pump, 3, draws water from the tank, III, and discharges it into the chamber, II, thus causing the water level in the main reservoir, I, to rise. Petrol is thereby forced out of the main reservoir through the pipe, 1, and simultaneously water rises in the open-ended pipe, 4, owing to the general increase in pressure throughout the system.

When it is desired to recharge the reservoir, the delivery-pipe, 1, is coupled up by a flexible hose, 2, to the supply-wagon and, initially, a little petrol is pumped from the reservoir into the supply-wagon in order to establish a syphon connection with the supply of fuel. When this condition is established, the action of the pump is stopped, and the diverting-valve, 5, is opened: the difference in head between the level of the supply-wagon and the underground tank then causes an automatic transference of the petrol into the main reservoir. This flow automatically ceases when the reservoir is full.

There is no doubt that these safety systems for fuel storage are of fundamental importance throughout the world. What with motor 'buses, motor cars, motor-driven flying machines and airships, and the prospect of an enormous extension in the use of motor engines for boats, the question of inflammable fuel storage will very soon



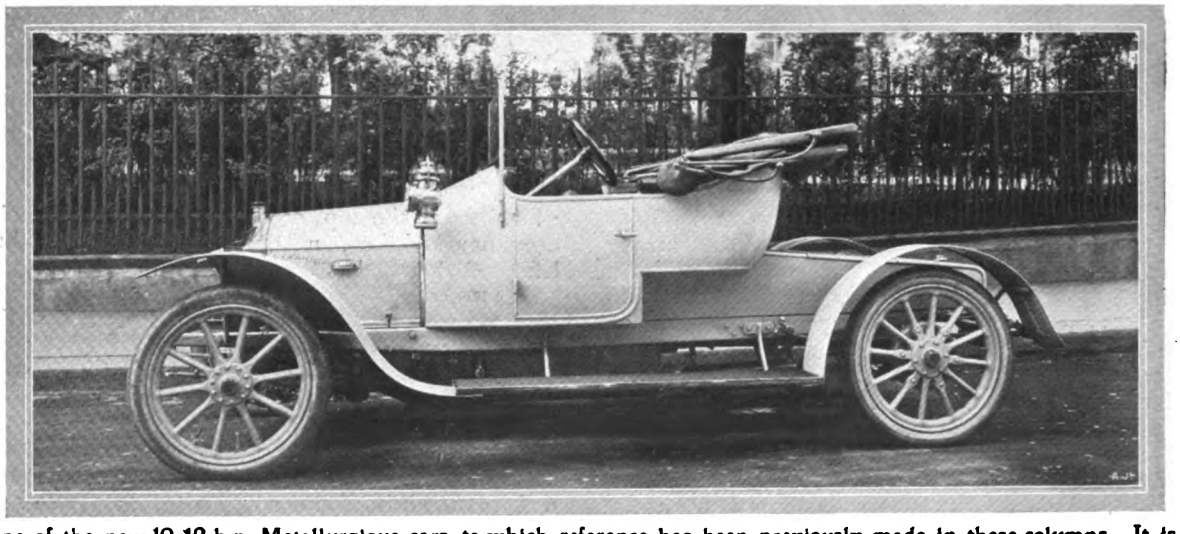
The "Lange-Ruppel" system for storing petrol in bulk introduced by the Julius Pintsch Co., so that it is available for immediate supply in small quantities.

reach a significance of quite extraordinary importance, and it behoves everyone to at least master the primary conditions that ensure safety in this connection.

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The Ivor Car.

IN our issue of July 27th, referring to the Humphris gear fitted in the back axle of this car, the name was unfortunately misspelt Humphries, and in order to avoid any possible confusion we take the opportunity of making this correction.



One of the new 10-12-h.p. Metallurgique cars, to which reference has been previously made in these columns. It is the latest production of Metallurgique, Ltd., and this delightful car is obtainable, equipped as it appears in the photograph, at under £300. Those who know Metallurgique quality can appreciate what this means in value.

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By VICTOR HART.

Transmission Problems.

The belt-slipping incidents in the early stages of the Junior T.T. race are being used by some writers as a peg upon which to hang arguments decrying present transmission systems. These gentlemen contend that a straight drive from engine to rear wheel—irrespective of whether a single gear or a multi-speed rear hub is employed—compels fitting of such a small driving-pulley that slip is inevitable in wet weather. It is not always safe to jump to an assumption merely because of one or two happenings in a single event; and this T.T. race exactly illustrates my point of view, viz., that for some purposes the *right* sort of belt will continue popular for a time. The reports of the race gave plenty of publicity to the fact of belts giving considerable trouble during the first lap, when the roads were wet and greasy from the preceding night's rain. This would lead non-spectators of the race to understand that all the straight-through driving belts were inefficient, but this is only true as regards rubber belts, as the following will prove. When P. J. Evans came into the Douglas depôt at the end of his first lap, in 2 hours 4 mins., compared with the leader's 59 mins. 10 secs., an inquiry from the writer as to the cause of delay elicited the reply, "tyres and belt slip, rubber belts are a nuisance." He had wisely carried a leather belt as a spare, and declared emphatically that without it he could never have got round the course. A rubber belt is fairly satisfactory in dry weather, but my own experience is to rest content with a good leather belt for all round work, winter and summer alike. When it comes to length of belt life, the rubber type is left far behind, but like many other good things, a leather belt must receive occasional attention in the way of scraping, dressing, and cleaning out particles of flint. With only 10 mins. work each week for keeping in good order, I have proved to my own satisfaction that a leather belt will last at least twice as long as rubber, with the added advantage of pulling well in heavy rain.

Chain-Drive Will Survive.

The single-geared directly-driven machine is already obsolete, and although one or two manufacturers hesitated this year, every standard pattern for 1913 will embody some form of change-speed gear. Because of ease of adaptation to current patterns and avoiding alteration of the frame, the rear hub change-speed gear properly enjoys popularity, but when considering inevitable changes, one is forced to the conclusion that the bottom bracket or counter-shaft type of change-gear will surely supplant all others. The single-gear direct-drive machine is fairly free from side-slip on grease, but men who have been driving machines with change-speed hubs have learned to their cost that ten times greater caution must now be exercised when traversing wet tram-lines. This is due to the extra weight in the rear wheel acting as a tail-wagger. Such propensity is rarely exhibited by machines having the gear at the bottom bracket, as in the Douglas, Clyno and Enfield, and this good feature alone will almost suffice to turn the current of public opinion.

Of equal importance to side-slip prevention is the factor of economical upkeep, and with rubber belts only providing an average life of under 1,000 miles, it is obvious that something better will oust belts. Chains will be the transmission medium of the future, of which we have evidence in the success of the Clyno, Scott, &c. Moreover, chains are the natural means for conveying power where the change gear is at the bottom bracket, and now that free engine clutches are universal, the old objection to harsh "drive" with chains no longer holds good. The next step in progress will be to completely enclose chains in dust-tight and oil-bath casings, and in this connection we must not forget the lessons taught by Carter when he introduced his chain-cases for pedicycles. The chain-cases must be substantial, and fitted with means for easy inspection and adjustments, as a few pounds of weight more or less does not matter upon a motor cycle.

The Silencer Trials.

The long-delayed silencer trials entered the preliminary stage last week, when tests were undertaken at the works of Auto Carriers, Ltd., at Thames Ditton, the directors of that company kindly placing the resources of their factory at the disposal of the organisers. In order to determine a "standard" of noise absence, a Rudge and a Triumph were each fitted with identical circular expansion-boxes, 12 ins. long and 5 ins. across, which by means of a telescopic arrangement could be extended to nearly double the length. Tried alternately on a quiet country road, the peculiar fact was brought out that the 12-in. length produced less noise than the full extension, but both machines were much quieter than those with the makers' ordinary silencers. Then experiments were tried with pipes of varying internal diameter, each 10 ins. long, and screwed directly into the rear of the expansion-boxes, the latter being also tried from 12 to 22 ins. extension with each size of piping. The best results were obtained with a 12-in. by 5-in. box carrying a 10-in. pipe of $\frac{5}{8}$ in. internal diameter, which so well deadened the sounds of the explosions that only the rattle of the valves and timing-gears could be heard. A further test is to be held with a fixed box and pipe of the latter dimensions, and, if last week's tests are confirmed, this will be the "standard" of quietness to be approached in the eventual competition.

Witnessing the above tests, I was considerably astonished by the amount of mechanical noise emitted by both of the machines after the "boom" of the engine explosions had been abolished, and before the ideally quiet machine will be evolved I can foresee a multitude of

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changes in existing methods of engine construction. The audible "clatter" with either of the test machines running at about 20 m.p.h. could be heard distinctly 200 yards away, so that these silencer trials are going to help in a direction hardly realised when they were originally undertaken, and may perhaps thoroughly modify existing engine design, in the way of valve lift, valve sizes, cushioning of tappet-heads, complete enclosure of valve mechanism, and different materials for the timing-wheels.



Notes from New York

MR. W. C. DURANT, who organised the General Motors Company, a $40,000,000 concern, combining several prominent American motor car manufacturers, is now engineering the Republic Motor Company with a capital of $65,000,000. This company embraces the Little Motor Car Company of Flint, Mich., which produces the Little cars, and Chevrolet Motor Company of Detroit, which manufactures six-cylinder cars. It is proposed that subsidiary companies should be formed in Philadelphia, Boston, Cincinatti, St. Louis, Minneapolis, Kansas, Portland, San Francisco and Los Angeles, while one has already been formed in New York. Each of these will have a complete factory for the turning out of Little cars to meet the demand in their district, and they will also sell the Chevrolet cars, which will, however, only be manufactured in Detroit. The slogan of the Republic Motor Company is "Built on the Spot," Mr. Durant holding the opinion that the problem of the manufacturer to-day is not production but distribution.

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Although the Packard Co. have reduced their prices, their example has not been followed by the makers of other high-class American cars; in fact, the tendency is the other way, and the F. B. Stearns Co. and the Locomobile Co. have both slightly added to their prices. An addition to the number of high-priced American cars is the new 40–80-h.p. 6-cyl. Marmon, which is marketed at $5,000.

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It seems that there is now no possibility of the Elgin Road Races being held this year. They were fixed to take place on August 23rd and 24th, and originally announced as Stock Car Races, as they always have been. There were no entries, however, and it was then decided to make them non-stock events, but then there was only a very poor response, and the Chicago Motor Club and others concerned decided not to go on with the arrangements.

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After a Chicago motorist had had his garage burgled for the third time and all available accessories cleared out, he decided it was time to take some more than ordinary steps to defeat the light-fingered gentry. So that their next visit might not be unannounced he had the garage wired for a closed circuit burglar alarm, but in place of the usual gong installed a Klaxon horn. When the thieves attempted to effect an entry on the fourth visit, they set up such a din that it roused the whole neighbourhood, and the police had no difficulty in landing the two marauders.

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Although the Goodrich and Diamond tyre firms are amalgamated, the two concerns will still be worked quite separately, as those in command believe in competition even within the organisation for the development of the best results. For this reason the Diamond and Goodrich elements of the amalgamation will be pitted against each other except in matters involving common cause and benefits.

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The special sub-committee of the New York Board of Aldermen, which has been considering the question of speed limits for the city, had recommended that the speed limits of eight and fifteen miles should be raised to fifteen and twenty-five miles an hour, while in approaching bridges or in turning corners of intersecting streets or in passing schools when they are open the speed of motor cars should not exceed 10 m.p.h. It is proposed that the penalties should be not less than $25 nor more than $100, or both fine and imprisonment not to exceed fifteen days. The second conviction should be met by a fine of $50 to $100 or imprisonment for thirty days, while for the third offence the penalty should be $100 fine and thirty days' imprisonment.

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As the eleventh and twelfth prizes offered in the 500-mile race at Indianapolis were not won, the management decided to put them together and divide the $2,100 *pro rata* amongst the starters who did not finish, according to the number of laps which were completed. It worked out to $1·9213 dollars per lap, and De Palma on the Mercedes, who fell out in the last lap, took the biggest amount of $382·34, Burman on the Cutting being next, completing 157 laps, and taking $301·54, while Dingley on the Simplex was third with 116 laps, and taking $222·87.

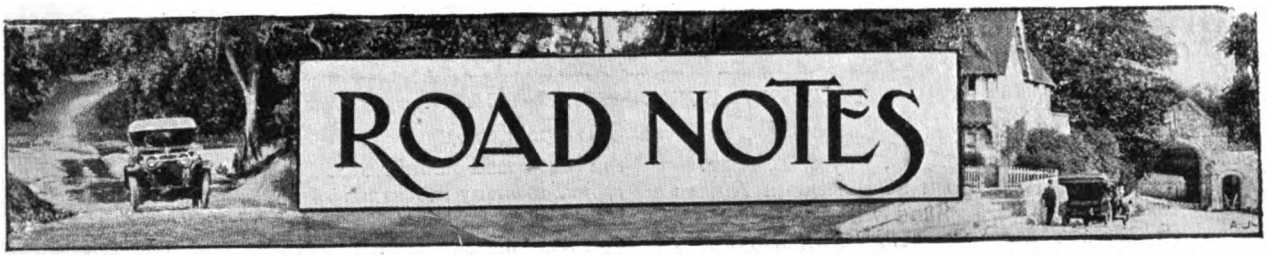
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Maryland has just passed an ordinance which makes it an offence for motorists to use, between sunset and sunrise, a warning signal of any other type than a hand-operated bulb horn, a penalty of $50 being fixed for offences. The law also makes it unlawful to operate a vehicle without an adequate muffler or to cut out the muffler at any hour of the day or night in towns or villages.

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Recently, the District Managers of the Willys-Overland Co. had a conference at Toledo, and according to Mr. George W. Bennett, Vice-President of the Company, one of the most important things brought out was that the day of the demonstration drive is gone, and the point which the prospective client is most anxious about is "How much will you give me for my old car?" It is now recognised by the buyer that the products of any well-known firm are quite reliable, but he wants to get as much as possible for last year's car.

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COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Northwich and Altrincham.

GREAT NORTH ROAD.—Timing is likely to be in force between Newark and Lincoln. Repairs to tramway at Harrogate Hill, north entrance to Darlington. Tarring is in hand at Bolton and Honington, near Grantham.

LANCASHIRE.—*Lancaster - Keighley Road.*—Members are requested to slow through High and Low Bentham.

Members are requested to slow through Garstang.

YORKSHIRE.—*Harrogate.*—Control working south side of town, upon main road from Harrogate to Leeds, outside the 10-mile limit.

EAST.

Newmarket-Royston Road.—Closed between Pampisford Hall gates and Bourne Bridge. Alternative route, Babraham.

SOUTH.

BATH ROAD.—Special caution through Harlington. Members are requested to slow through Maidenhead. Under repair between Twyford and Sonning cross-roads, also between here and Reading—special caution at night. In bad condition on the London side of Reading, viz., between tram terminus and railway bridge, also between Marlboro' and Calne. Under repair near Calcot and Theale.

BRIGHTON ROAD.—Special caution (timing) between Reigate and Dorking. Members are requested to interrogate the patrol on duty at Kingwood cross-roads.

HANTS.—*Christchurch District.*—Controls are likely to be working between Christchurch barracks and Iford bridge, also at Pokesdown Hill.

KENT.—Timing operations at Bexley Heath, at Blackheath and Shooter's Hill.

Folkestone Road. — Re-metalling at Kingsdown also between Larkfield and Ditton.

LONDON DISTRICT.—On account of timing operations special care is advisable in and near Redcliffe Gardens, The Boltons, Earl's Court Road, Victoria Embankment, near Albany Gate, Regent's Park, Golder's Green, Mitcham, Morden, Sutton, Banstead, through Croydon to Purley, between Wimbledon and Ewell, between Kingston and Leatherhead, Hounslow, Staines, Putney Heath, Harlesden, Deptford, Camberwell, Maida Vale, Highgate, Holloway, Lewisham High Street, also between Sudbury and Harrow.

MIDDLESEX. — Control working on Staines-Sunbury Common road.

Bounds Green.—Timing near junction of Bounds Green road and Jolly Butcher's Hill (near Wood Green).

Southampton Road.—Controls are being worked at night through Egham.

SURREY. — Controls are likely to be working at the undermentioned points: At South Godstone Station; between Ewell and Epsom; at Surbiton; also between here and Esher.

Chertsey.—In Chertsey Lane, Thorpe, timing is in force.

Eastbourne Road.—Timing operations in and near Kenley and Whyteleafe.

WEST.

DEVON.—*Barnstaple-Ilfracombe Road.*—Members should proceed *via* Braunton in preference to *via* Bittadon.

MIDLANDS.

Coventry Road.—Members are requested to slow through Redbourne, Fenny Stratford and Stony Stratford.

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CORRESPONDENCE.

Wheel Tracks on Roads.

SIR,—I have noticed when out in the country roads that the tracks of motors frequently are made up of a number of curves not altogether unlike rabbit runs. The radius of the curvature appears to be something like 10 ft., and the length of each curve something like 2 or 3 ft.

I should be glad to know if any others have observed this, and what is the explanation?

Kenley. M. JONES.

Cycle Cars.

SIR,—I have read with pleasure Mr. Victor Hart's comments relative to my letter on cycle cars, and I am glad to find we are in such close agreement. The matter in which I understand we are not in agreement is the subject of the back-axle, my contention being that something better than the orthodox back-axle will evolve. By something better I mean that which is not only cheaper to produce but that which imposes less strain and wear on tyres. I agree with Mr. Victor Hart's warning as to the necessity of a 4-wheeled cycle car being tested to destruction, and we can see already clear signs that insufficiently-tested machines are being made and sold, and I consider that the purchasers of these vehicles are doing a great service to the movement. There are few firms who have the time and capital to test these promising little runabouts without being assisted by others. Even if this is done by several of the large firms it is found that when the mechanism gets into the hands of the general public that modifications and improvements are a vital necessity.

The Press have an enormous influence in forming a public opinion, and therefore the demands of the public in the way of motor vehicles. My object in communicating with your journal was with the view of ascertaining as clearly as I could the requirements of the public, and I am still not able to see whether the public require a really speedy machine or a slower-speed little runabout, but I am clearly determined that the trade is to be done with the cycle car which is most economical to run, and it is very difficult to design on these lines and sell at a price, as your Mr. Victor Hart mentions, which will be materially less than the American cars at present on the market. Unfortunately users, as a rule, do not know the cost of their vehicles; if they did there would be more willingness, I am sure, to pay a higher first cost and reduce the cost per mile.

It is quite clear that the lower-priced cars are not the cheapest in running costs, nor does paying a good price for the car necessarily lower the expense of motoring.

Penge. A. E. PARNACOTT.

An Appeal to which all should Respond.

SIR,—For some weeks from this date the roads in many districts will be much used by Territorial troops. It would be a pleasant recognition of their work if your motoring readers would slow down when passing a column. In dry weather the motorist need only look behind to see the discomfort he causes, and in wet weather the clothing of many of the men gets completely covered with mud on one side.

My own experience is, that it is exceptional for a motorist to regard troops on the march as anything but an obstruction to his course; he seems to think that a mixed column of men, wagons and horses can skip off the road as easily as a single foot passenger.

The best driver for a motor is an ex-coachman; but too often he is a mechanic, with no knowledge of horse traffic, or the common amenities of the road, thinking only of the pace at which he can drive his machine.

H. W. PLANT, Major,
Transport Officer 2nd N. Mid. Fd. Amb., R.A.M.C.

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Artist-Draughtsmen Wanted.

THERE are vacancies on the staff of the AUTO. and *Flight* for artist-draughtsmen with sufficient technical knowledge to enable them to sketch rapidly the essential features of detailed machinery. Letters should be addressed to the Editor, 44, St. Martin's Lane, W.C.

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SOUTH AFRICAN MOTOR DERBY.

COMPETITION FOR REYERSBACH TROPHY.

TALBOTS SWEEP THE BOARD.

(From Our Own Correspondent.)

Johannesburg, July 26th, 1912.

WHAT rightly may be described as the South African Motor Derby was decided last Sunday over a course on Veld roads to the south of Johannesburg, when nineteen cars of many makes, shapes, and sizes were brought together to try conclusions for the custody of the Reyersbach Cup. The task set the competitors was a severe one, as the roads in that part of the country in the Klip River Valley are not such as to render it easy to get the best speed performances, but as the course was fairly typical of many thousands of miles of roads in Africa, results are more instructive than if a laid-out racing track had been used. The race was for speed, allowance being made on formula for weight and horse-power, and in addition to the general competition a special prize was given for the American car that put up the best performance, as it is reckoned that these cars with their high horse-power and light weight would have a big handicap, as compared with the British and Continental makes. Possibly never before in the history of the Transvaal Automobile Club, under whose auspices the contest was held, has so much public interest been shown in a motoring event. In previous years motor races have presented little to attract the interest and attention of those outside the trade or sport of motoring, but this year a huge crowd gathered in the neighbourhood of the starting and finishing points, and closely followed the doings of each car. There were several reasons for this display of interest; one was that the venue of the competition was within close reach of Johannesburg and that the starts and finishes could easily be witnessed, the course being a triangular one over a distance of about 21 miles and the competitors having to traverse it five times. Unfortunately only a few made the quintette of trips, as a lamentable accident happened to one of the first cars out in the final lap, the car overturning. The driver, Mr. W. Wilkinson, of Messrs. Greig and Wilkinson, secretaries of the club, escaped with a fracture of the thigh, but a grim fate befel a passenger, W. G. Parsons, who



THE SOUTH AFRICAN COMPETITION FOR THE RAYERSBACH TROPHY.—The winning Talbot car. Note the driver's smile upon his just having learned that he had won the trophy.



THE SOUTH AFRICAN COMPETITION FOR THE REYERSBACH TROPHY.—Scene at the finishing point.

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was roped on to the back of the car. His skull was fractured and he died in a few moments. The observer was thrown clear of the car and got off with only a shaking. The car, a two-seated Standard, was wrecked.

But for that gloom-compelling circumstance the competition could have been marked down as one of the most successful and instructive yet held in this country. The sensation of the day from a comparative motoring viewpoint was the wholesale manner in which the twelve horse-power—or on rating 15·36—Talbot cars annexed the honours, the only three entered taking first, second and third places. The winner was Mr. D. H. Saker, who on account of his string of successes in competitions is entitled to be regarded as the leading racing motorist of South Africa. His brother, Mr. C. G. Saker, was not far behind him in second place, while third place was occupied by Mr. C. Hoare, who was at the wheel of a Talbot car, and had done over three years' service over South African roads. Surely this can be taken as establishing the efficiency of this car for Colonial purposes, and more so is this justified by the fact that these cars have been to the fore in all classes of competitions here, and have won the Reyersbach four years in succession. The Trophy, which is a very handsome one, was presented to the club by Mr. L. Reyersbach, late of the Corner House, Johannesburg, and now becomes the property of Mr. D. H. Saker, he having won it twice in three years.

It was unfortunate that Mr. Lang's Sunbeam encountered tyre troubles early in the event, and took no further part, but as it was, it put up the fastest time over a lap distance. The prize for the American-made cars was won by a Flanders, other competing cars being Ruicks and Overlands. The following are the results in detailed tabular form :—

	h.p.	Weight lbs.	Average Factors.
D. H. Saker (Talbot) ...	15·36	3,725	839
C. G. Saker (Talbot) ...	15·36	3,800	825
C. Hoare (Talbot)	15·36	3,375	719·9
W. Wilkinson (Standard) ...	10·162	2,700	689·27
J. B. Adair (Waverley) ...	9·295	2,035	669·8
H. Gill (Austin)	10·28	2,375	580·05
R. Goldberg (Diatto) ...	14·08	2,550	561·97

Appended are the factors in the four laps together with the times :—

Lap ...	1.	2.	3.	4.
D. H. Saker ...	845	839	864	808
C. G. Saker ...	831·4	824·6	811·5	832·5
C. Hoare	751	601	771·2	756·4
W. Wilkinson ...	682	763	620·5	691·6
J. B. Adair ...	654·5	585·5	737·7	700·5
H. Gill	231	696·5	681·4	711·3
R. Goldberg ...	547	567·4	564	569·5

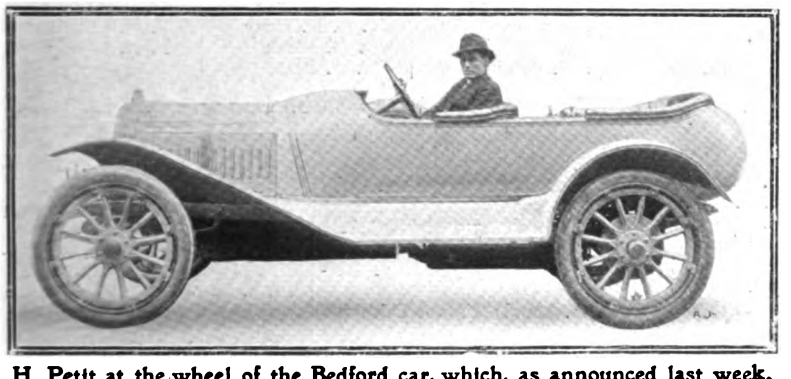
The numbers in regard to the following times indicate the order of merit mentioned above :—

Lap...	1.	2.	3.	4.	h.	m.	s.
1 ...	34·23	34·39	33·39	36·4	2	18	24
2 ...	35·41	35·58	36·33	35·39	2	22	42
3 ...	35·6	34·40	34·10	34·51	2	18	36
4 ...	48·8	43·16	51·27	46·7	3	9	55
5 ...	40·9	44·52	35·35	37·32	2	38	5
6 ...	78	39·47	41·18	40·4	3	19	3
7 ...	39·45	38·21	38·29	38 9	2	34	45

⊛ ⊛ ⊛ ⊛

THE TSAR'S CUP.

We were able to just briefly record in our last issue the bare results of the fourteen days Russian reliability trial over a route from St. Petersburg to Moscow, *via* Reval, Riga, Warsaw, and Kieff, for the Tsar's Cup and a number of other prizes. The route was a very trying one, and it speaks well for the construction of modern cars that even five out of twenty-one starters got through without loss of marks. For the greater part of the 4,000 kiloms. the route was over what were but apologies for roads, and in the last two stages one competitor after another was obliged to withdraw or suffer penalties for broken springs, frames and wheels, leaking radiators and petrol tanks. The chief prize in the contest was the Tsar's Cup, a very fine punch bowl, which was awarded to the club nominating the winner. It fell to the Moscow A.C., who also won it last year, the winning car this time being an 8-20-h.p. Loreley car driven by Herr Schurigin, who received a gold medal bearing a representation of the Cup. Another notable success was the Bedford, which arrived in Moscow on scheduled time without any penalisation, winning the gold pokal presented by the Grand Duke Michael Alexandrovitch. This car also won first prizes in the flying kilometre speed trials at St. Petersburg and Riga, and the hill-climb at Kieff. The driver, Mr. H. Petit, a young man only 22, is to be congratulated upon this success, as also is Mr. Dransfield, the Bedford representative, who made the arrangements. The only other cars to get through without penalisation were two Komnick cars and a Lancia. The third Komnick car only had its record spoilt through an accident for which another car was to blame. Of the two Komnick cars one driven by Kienast took the Reval prize, his companion Vienart secured one of the prizes offered by the Baltic A.C., while the Riga prize was awarded to Lure on the third Komnick. In the hill-climb at Kieff the Komnick cars were first in their class, and in the speed tests they easily surpassed the minimum speed of 78 k.p.h. by getting up to 104 k.p.h. The team prize offered by the Imperial A.C. of Russia was awarded to a team of two Lancia cars.



H. Petit at the wheel of the Bedford car, which, as announced last week, obtained the Grand Duke Michael Alexandrovitch's Cup in the Imperial Russian Competition.

Another Grand Prix Race.

Not satisfied with the recent Grand Prix Race, a proposal has been put forth by the A.C. de Sarthe to hold a Grand Prix de France race on the Sarthe Circuit on September 8th and 9th next. The distance suggested is 700 kiloms.; 4-cylinder cars not exceeding 3 litres capacity will be eligible, the overall width must not exceed 1·75 metres, and there will be no restrictions as to weight. It is also proposed to run a free-for-all class. Entries close on August 8th.

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BROOKLANDS BANK HOLIDAY MEETING.

THE programme for the meeting to be held at Brooklands on Monday next contains a round dozen of track items, in eleven of which there is a full complement of entries, while there is no doubt that the twelfth—the Winners', Handicap—for which post entries will be received, will also provide a good race. On this occasion the racing starts at noon, and the last car event is timed to take place at 5 o'clock. Afterwards there will be the usual Aeroplane Handicap. Perhaps the most interesting event is the three-litre race, which should provide some good sport, as there is a very representative entry, including more than one "dark horse." In this event, and in one or two others, Mr. Hornsted will be at the wheel of his new love, a 13·9-h.p. Mass. Although Mr. Hornsted will not be driving the 59·6-h.p. Benz, a similar car will be out piloted by Mr. Eric Horniman, while among the other big cars entered are a 76-h.p. Mercedes, two 48·6-h.p. Mercedes, a 59·6-h.p. Darracq, and Mr. Coatalen's record-breaking Sunbeam.

12.0 noon.—The Zebra Car Race. About 2 miles.
For single-cylinder 4·84-h.p. Zebra cars.

C. R. Nash-Wortham	Dr. Goodchild	Malcolm McKenzie
C. C. Smallwood	U. Kreitmayer	G. M. Eden
S. H. Lambert	S. K. Broadfoot	C. M. Durkin
F. C. Cottrell		

12.25 p.m.—The Brooklands Three-Litre Handicap.
About 8½ miles.

For motor cars propelled by means of internal-combustion engines only, in which the volume swept by the engine pistons does not exceed 3,000 cubic centimetres.

McL. Staight (15·9-h.p. S.C.A.R)	W. Turner Smith (13·9-h.p. Stoewer)
S. Cummings (13·9-h.p. Crespelle)	S. J. Lacon (15·9-h.p. Gregoire)
O. D. Pollak (15·9-h.p. S.C.A.R. "Mud")	C. Engley (15·9-h.p. Turcat-Mery)
G. Hands (15·7-h.p. Calthorpe)	W. R. McBain (15·9-h.p. Delage)
Edw. Savill (13·9-h.p. Le Gui)	W. J. Masser Horniman (13·9-h.p. Mass)
H. F. W. Farquharson (15·9-h.p. Sunbeam)	G. F. Heath (12·1-h.p. Mathis)
C. L. E. Geach (15·9-h.p. Singer)	G. Hands (15·7-h.p. Calthorpe)
Percy E. Lambert (19·2-h.p. Austin "Pearley III")	H. C. Lambert (15·9-h.p. Crossley)

12.50 p.m.—The Eleventh Short Motor Cycle Handicap.
About 5⅝ miles.

S. Day-Timson (Rudge)	R. Croucher (Kerry Abingdon)
W. Dewar (Triumph)	"A. E. Pontin" (Rudge)
G. E. Stanley (Singer)	W. Stanhope-Spencer (Rudge)
W. T. W. Wartnaby (W.D.)	W. H. Elce (Rudge)
Archbd. Brunton (Bat*)	S. Russell Cooke (Rudge)
P. Newbold (Zenith*)	A. P. Williams (Matchless*)
H. H. Square (Robin Minerva)	N. D. Slatter (Alcyon)
S. F. Garrett (Green Precision)	P. Schmidt (Puch)
C. Whitehead (Triumph)	W. Gordon-Fowler (Rudge)
B. C. Remington (Rudge)	H. C. Mills (Green)
James Gibbs (Humber*)	J. A. Manners-Smith (Triumph)
E. H. Dolley (Jap)	H. H. Huckle (Zenith*)
C. Townsend (Zenith*)	F. H. Arnott (Rudge)
F. Picken (Rudge)	* Twin-cylinder.

1.30 p.m.—The Seventh 70 m.p.h. Long Handicap.
About 8½ miles.

S. Cummings (13·9-h.p. Crespelle)	C. O'Malley (11·5-h.p. M.A.F.)
H. Belcher (11·9-h.p. Humber)	R. Lisle (15·9-h.p. Star)
Lord Exmouth (15·9-h.p. Hispano-Suiza)	G. F. Heath (10·4-h.p. Mathis)
	G. F. Heath (12·1-h.p. Mathis)
Neville Hardy (17·9-h.p. Vauxhall)	Henry Wing (13·6-h.p. F.N.)
E. Savill (13·9-h.p. Le Gui)	W. T. Smith (13·9-h.p. Stoewer)
T. Andre (8·9-h.p. Marlborough)	A. B. Rigby (19·2-h.p. Adams)
H. E. S. Huth (22·4-h.p. Ford)	A. L. Ryder (20·1-h.p. Mercedes)
A. H. Borton (19·2-h.p. Adams)	W. J. Horniman (13·9-h.p. Mass)

2 p.m.—The Eighth 100 m.p.h. Short Handicap.
About 5¾ miles.

L. Coatalen (30·1-h.p. Sunbeam)	N. S. Hind (35·7-h.p. Berliet)
M. Campbell (59·6-h.p. Darracq "Blue Bird")	Lord Exmouth (27·3-h.p. Komnick)
Eric Horniman (59·6-h.p. Benz)	C. L. E. Geach (15·9-h.p. Singer)
C. A. Bird (15·9-h.p. Sunbeam)	Percy E. Lambert (19·2-h.p. Austin "Pearley III")
Gordon Watney (48·6-h.p. Mercedes)	H. L. Lascelles (76-h.p. Mercedes)
A. Garfield (15·9-h.p. Calthorpe)	S. J. B. Lacon (15·9-h.p. Gregoire)

2.25 p.m.—The Eighth 70 m.p.h. Short Handicap.
About 3¼ miles.

S. Cummings (13·9-h.p. Crespelle)	A. H. Borton (19·2-h.p. Adams)
H. Belcher (11·9-h.p. Humber)	C. O'Malley (11·5-h.p. M.A.F.)
Lord Exmouth (15·9-h.p. Hispano-Suiza)	R. Lisle (15·9-h.p. Star)
	G. F. Heath (10·4-h.p. Mathis)
Neville Hardy (17·9-h.p. Vauxhall)	G. F. Heath (12·1-h.p. Mathis)
K. Yano (25·8-h.p. Bedford)	A. E. George (22·4-h.p. Ford)
Edward Savill (13·9-h.p. Le Gui)	Henry Wing (13·6-h.p. F.N.)
T. Andre (8·9-h.p. Marlborough)	A. B. Rigby (19·2-h.p. Adams)
H. E. S. Huth (22·4-h.p. Ford)	A. L. Ryder (20.1-h.p. Mercedes)

2.50 p.m.—The Eighth 100 m.p.h. Long Handicap.
About 8½ miles.

L. Coatalen (30·1-h.p. Sunbeam)	Gordon Watney (48·6-h.p. Mercedes)
M. Campbell (59·6-h.p. Darracq "Blue Bird")	C. L. E. Geach (15·9-h.p. Singer)
N. S. Hind (35·7-h.p. Berliet)	Percy Lambert (19·2-h.p. Austin "Pearley III")
H. F. W. Farquharson (15·9-h.p. Sunbeam)	H. L. Lascelles (76 h.p. Mercedes)
C. A. Bird (15·9-h.p. Sunbeam)	Eric Horniman (59·6-h.p. Benz)
A. Garfield (15·9-h.p. Calthorpe)	A. Cumming (48·6-h.p. Mercedes)

3.15 p.m.—The Ninth Long Motor Cycle Handicap.
About 8½ miles.

S. Day-Timson (Rudge)	"A. E. Pontin" (Rudge)
W. Dewar (Triumph)	W. Stanhope-Spencer (Rudge)
G. E. Stanley (Singer)	W. H. Elce (Rudge)
K. Yano (Bat*)	S. Russell Cooke (Rudge)
W. T. W. Wartnaby (W.D.)	A. P. Williams (Matchless*)
R. Croucher (Kerry Abingdon)	N. D. Slatter (Alcyon)
E. F. Remington (Matchless*)	P. Schmidt (Puch)
S. F. Garrett (Green Precision)	H. C. Mills (Green)
W. Moore (Zenith*)	H. H. Huckle (Zenith*)
C. Whitehead (Triumph)	F. Hannis (Jap)
James Gibbs (Humber*)	F. H. Arnott (Rudge)

* Twin-cylinder.

3.40 p.m.—The August Private Competitors' Handicap.
About 5¾ miles.

H. F. W. Farquharson (15·9-h.p. Sunbeam)	O. D. Pollak (15·9-h.p. S.C.A.R.)
	R. B. Whitehead (35·7-h.p. Berliet)
McL. N. Staight (15·9-h.p. S.C.A.R.)	S. J. B. Lacon (15·9-h.p. Gregoire)
	W. R. McBain (15·9-h.p. Delage)
Lord Exmouth (15·9-h.p. Hispano-Suiza)	E. Horniman (59·6-h.p. Benz)
	M. Campbell (59·6-h.p. Darracq "Blue Bird")
C. A. Bird (15·9-h.p. Sunbeam)	
Neville Hardy (17·9-h.p. Vauxhall)	

4.5 p.m.—The Second Ford Car Race. About 2 miles.
For 4-cyl. 22·4-h.p. Ford cars, having a bore of 3¾ ins. and a stroke of 4 ins.

J. E. Looker	A. E. George	H. Alexander
J. Coulthard Bate	P. L. D. Perry	F. G. Brown
Rowland Winn	A. H. Black	F. A. Hendy
J. W. Austin	H. A. Bate	

4.30 p.m.—The August Sprint Handicap. About 2 miles.

L. Coatalen (30·1-h.p. Sunbeam)	R. Lisle (15·9-h.p. Star)
N. S. Hind (35·7-h.p. Berliet)	C. R. Engley (15·9-h.p. Turcat-Mery)
Lord Exmouth (15·9-h.p. Hispano-Suiza)	W. R. McBain (15·9-h.p. Delage)
O. D. Pollak (15·9-h.p. S.C.A.R. "Mud")	Eric Horniman (15·9-h.p. Benz)
	W. J. Masser Horniman (13·9-h.p. Mass)
Gordon Watney (48·6-h.p. Mercedes)	S. J. B. Lacon (15·9-h.p. Gregoire)
G. W. Hands (12-h.p. Calthorpe)	

5 p.m.—A Winners' Handicap. About 3¼ miles.
For winners in above events. Prizes: Cups, £12 10s., £7 10s. Post entries.

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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

70.

ANOTHER "MAGNETO-KNOCK."—I was much interested in Mr. F. Shaw's letter in your last week's issue, telling us how he cured a knock that he had ultimately traced to one of the magneto bearings. I also had an experience with a knock that was caused by the magneto while touring in France about a year ago, but although I have cured it without much difficulty, I have never yet been able to find an explanation for it, and I am writing this chiefly with the object of asking my fellow chauffeurs whether anyone has had a similar thing happen to him, and if so, whether he can give me a satisfactory explanation for the following occurrence.

As I said already, I was at the time touring in France with my 25-h.p. Darracq, which was then three years old. It had been thoroughly overhauled by myself previous to taking it across the Channel, and was therefore in the very best condition. One day of the tour the road was a continuous succession of more or less steep hills, and while I was approaching the top of a very steep and trying climb, with the engine pulling hard, it suddenly begun to knock in a most alarming manner. It was a kind of sharp metallic bang that sounded just as if something had broken and was knocking against some other metal part, so that the idea of a broken connecting rod first suggested itself to me. Naturally I stopped at once, but upon looking around the engine and turning it with the starting handle I could not find anything out of order. The engine also started up readily and ran as quietly as usual when not under load, but as soon as we came to another very steep piece of the road the banging started again, but disappeared when we were over the crest of the hill, and did not occur again until we came to another very steep hill. That evening I spent more time than usual in the garage, but was quite unable to find an explanation for the knock, which was really very bad. When I had exhausted all possible sources, it occurred to me to exchange the Bosch D4 magneto for the spare magneto that I was carrying, and, curious to relate, although on the next day the hills were, if anything, steeper than on the previous day, no knock could be heard, however hard the car had been driven, and however much the engine was labouring. Of course I thought that the magneto must be the reason for the knock, and as soon as I found time I took it to pieces, but with the exception of some dirt in a few places, especially on the contact-breaker end of the armature, where the brass casing of the condenser was rather black and oily, I could find nothing that was not as it should be. So all I could do was to clean it, and put it together again. Some time later when on our way back we again came through that hilly district, I put the Bosch magneto back on the engine, but it never knocked as it had done before; in fact I have never heard a similar knock again on my engine.

Both magnetos were timed exactly alike, and neither fired before dead centre, so that preignition due to too early timing is out of the question. There only remains, to my mind, the theory that the dirt in the Bosch might have had something to do with the knock, but how this could be possible is what I should like to know, as I cannot find a reason why this should be the case.—*T. Wallis.*

71.

LINING A FIERCE BRAKE.—The other evening a friend of mine, who had had a good deal of trouble with a very fierce foot-brake and who, upon my recommendation, had relined the shoes with one of those new asbestos preparations, came to me with a very long face. For about six weeks the new lining had done splendidly, and all of a sudden the old fierceness had reappeared and was now worse than ever. The least touch of the brake shook the car in a most alarming manner and no amount of adjusting or oiling seemed to make the slightest difference. There was nothing to be done but to take it to pieces, and as I held myself in a way responsible because I had recommended the lining, I promised to come across later on. We took off the brake shoes and found the drum cut up very badly indeed, just as if it had been chipped and knocked about by some hard tool; no wonder the brake was fierce. But when I looked for the reason of this state of affairs I could not help laughing, because amongst the rivets that held the lining to the shoes proper I found no less than three iron rivets. While fitting the new lining my friend had run out of copper rivets, and as we live nine miles from a shop where you can buy rivets, and he wanted to finish the job, he thought that three iron rivets might do, never considering that the iron would cut the brake-drum and not wear down evenly with the lining as the soft copper rivets do. For six weeks the brake had acted well, and my recommendation seemed justified, but by then the asbestos had "settled" down, and as the rivets were not countersunk very deeply their heads touched. Well, we had to smooth down the brake-drum in the lathe, and after fitting new copper rivets the brake was all right once more. *Moral*: For brake-linings use well countersunk copper rivets.—*B. Linter.*

72.

DON'T FORGET THE FAN-BELT.—This is the time of the year when more than usual attention should be paid to the fan-belt, if you want your engine to keep cool. Well cleaning the belt with petrol, and soaking it over night in castor oil, will revive the grip of even a very old leather belt.—*Tinker.*

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act :—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.

2. That endorsements shall lapse after a reasonable period.

3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.

5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.

6. To protect the interests of Chauffeurs generally.

7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.

10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting of the Management Committee was held on Monday last. Present: Mr. A. J. Allison, presiding, Mr. H. Pye, Trustee; Mr. J. Cates, vice-president. Committee: Messrs. Kahn, Holland No. 2, Wallis, Adey, Oliver, Emmerson, and Shaw.

The minutes of the previous meeting were read and confirmed.

Applications for membership having been dealt with, the secretary reported an interview with the secretary of the R.A.C. with regard to Employment Bureau. The committee, after considering the report, decided to appoint the chairman with the secretary to go carefully into the matter, and if possible without in any way impairing the independence of the Society, endeavour to fix a working arrangement whereby the Society could obtain for its members the benefit of supplying drivers for R.A.C. members.

A letter was read from the Michelin Tyre Co. in which they took exception to the publishing of a map in connection with the photos of N.S.C. garages published in the official organ.

The secretary explained that the map was sent by the garage, and that the letter from the Michelin Tyre Co. was his first intimation of the matter.

The committee instructed the secretary to express regret that any infringing of the rights of the Michelin Tyre Co. had occurred, and noted with regret the tone of the letter sent, without first asking for an explanation.

Letters were also submitted from Mr. Thomas, Mr. Savage, Mr. Rumsey and Mr. A. Fairer.

Clubroom Notes.

The clubroom is still well attended, despite the fact that members are leaving town. Our Percy, failing to get an opponent worthy of his steel at billiards, instituted the game of skittles with great success until Wednesday last. On that night Percy had the nightmare. Hundreds of little black skittles danced gaily before him. His opponents have been wonderfully merry and bright since the event, and are wishing him many happy returns of the day.

Members garaging in the south-west district should make a point of dining at the clubhouse. They will find the fare excellent and cheap.

Accepted for Membership.

Robert Dent, London, N.
Walter J. Belcher, Egham, Surrey.
Henry A. Dye, London, N.W.
Albert J. Kippin, London, N.W.
George W. Willson, London, N.

Applications for Membership.

Stanley Bartley, Northwich.
William Rhodes, Surbiton.
Duncan Cameron, Inverness.
William Goddard, London, S.W.
Benjamin H. Harrison, Sheffield.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

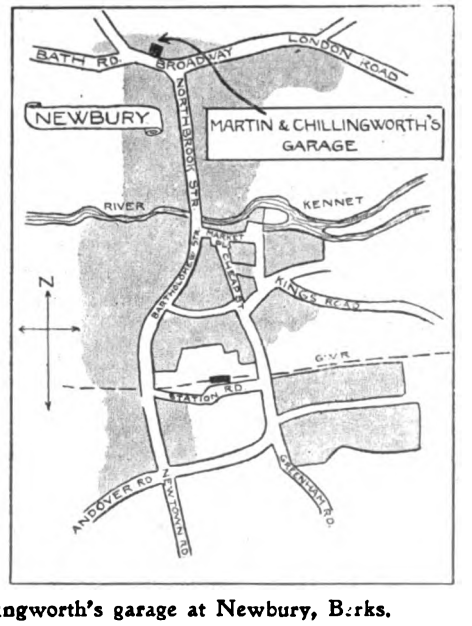
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For the Best Hotels, see "Auto." Guide every week.

For Sunday Golf, see "Auto." Guide every week.

For Garages Open Sundays, see "Auto." Guide every week



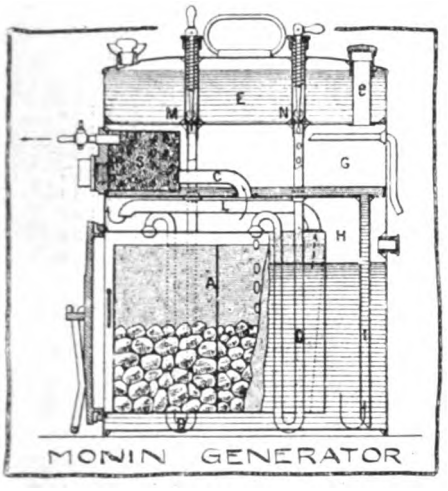


N.S.C. GARAGES, No. 8.—Messrs. Martin and Chillingworth's garage at Newbury, Berks.

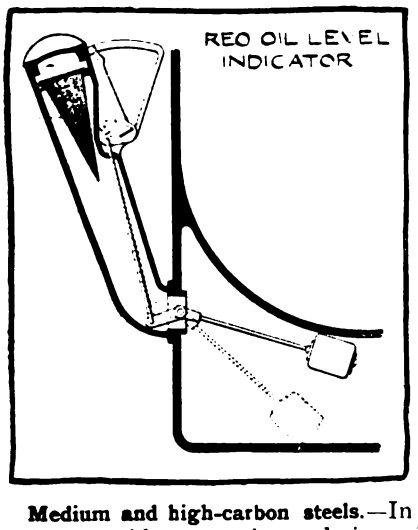
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Foreign Miscellany.

The Monin acetylene generator.—The charge of calcium carbide is placed in a loose receptacle, divided into two compartments by the partition, A; water is contained in the upper reservoir, E, from which it flows past one or both of the needle-valves, M and N, through the syphon-tubes, D and D, to the carbide receptacle. If the pressure of the gas in the generator exceeds that corresponding to the height of the water-column between the summit of the syphon and the water level in E, the flow of water to the carbide will cease. To prevent excessive and sudden fluctuation of the pressure of the gas, the following method has been adopted: the gas passes from the carbide-chamber through the passage, L, to the chamber, H, which is nearly filled with water; the gas under pressure drives the water up the pipe, I, into the chamber, G, until the height of the water-column in this instance is equal to that in the syphon-tubes, which limits the pressure of the gas generated. The gas finally passes out to the lamps through the tube, C, and the cotton-wool strainer, S.—*Omnia.*



The oil-level indicator, as fitted to the American Reo cars, is a refinement which should be welcome to owner-drivers, as it obviates the necessity of manipulating level-cocks to ascertain the quantity of lubricant present in the base-chamber sump, an operation sometimes rendered unpleasant by the awkward location of the overflow-cock.—*Vie Automobile.*



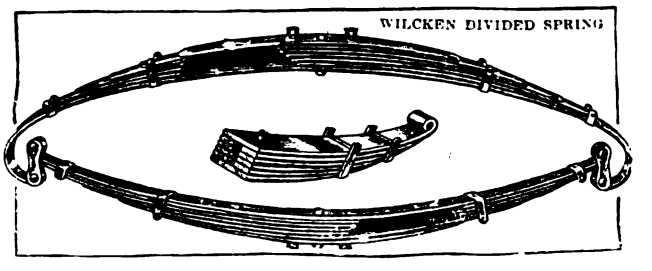
Medium and high-carbon steels.—In steel making, the carbon is said to enter into solution with the iron. This means that two elements have combined so completely and in such a manner that no method is known whereby it is possible to distinguish the one from the other. To find out how much carbon is present in steel, it must be separated from the iron by certain powerful chemical reactions. When this is done, the carbon is weighed and its percentage is figured from the total weight of the entire mass. When the carbon percentage in steel goes above 0·90 per cent., however, this combination is not complete, as then the iron will not dissolve all of the carbon, and particles of it will begin to separate out in the form of graphite. The more the carbon percentage is raised above 0·90 per cent. the greater will be the amount of graphite that is present in the steel.

Any increase from 0·30 per cent. of carbon to the higher percentages that are used in steel does not cause any distinct phenomena to take place that will aid in making a division between the medium and high-carbon steels. Consequently, the division line varies, but usually steels containing from 0·30 to 0·60 per cent. are called medium-carbon steels, while those containing over 0·80 per cent. are called high-carbon, hard or tool steels.

The particles of graphite which separate out after a certain percentage has been reached weaken the steel, and hence after a carbon content of 0·90 per cent. has been exceeded, the strength of the metal begins to decrease until at about 2·00 per cent. of carbon it reaches the form of cast iron. Each increase in the carbon percentage from 0 up to 0·90 per cent. will result in a gradual and rather rapid increase in the tenacity of the metal. From there to about 1·25 per cent. of carbon a slight increase occurs, but beyond this latter point the tenacity rapidly decreases. Each increase in the percentage of carbon causes a gradual increase in the hardness of the metal, and a decrease in the ductility that follows an irregular curve. This curve shows a rapid decrease in ductility when the carbon content is raised from 0·50 to 0·70 per cent., but at the other points the decrease takes place more slowly.—E. F. Lake in *the Automobile.*

Soles.—Commercial vehicle operators who favour the neat appearance of their vehicles when on the road should stipulate that their trucks be built without dashboards. There seems to be no surer way of preventing the driver's assistant from resting his weary limbs by stretching them out on a level with the base of his spine and thus exhibiting to a gasping world little besides the soles of his unlovely feet.—*Automobile Topics.*

The Wilcken divided spring. — According to this arrangement, as illustrated herewith, the inner leaves are in two portions instead of being continuous as in the ordinary construction. In addition to being divided transversely the leaves are divided longitudinally as well, so that there is a channel left inside the spring. The division in the inner leaves relieves them of internal strain



contracted in the process of being tempered. A channel formed in each leaf by the dividing cut is made use of for lubrication; a hard oil is forced into this channel through a grease cup placed on the short leaf, the lubricant working between the spring leaves by the action of the springs forms a coating between the members of the springs. *Motor Age.*

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RACES, RECORDS AND TRIALS.

Victor Tyre Test.

A COMPARATIVE test to destruction of the Victor tyre *versus* three leading makes of tyres, organised by the Challenge Rubber Mills, of Eagle Wharf, Islington, commenced last Monday. It is to be carried out under ordinary touring conditions on a 24-40-h.p. Fiat car, which weighs in touring trim well over two tons. All the tyres used in this test have been bought by a committee of private motorists, which includes such well-known names as Lord Norbury, Earl de la Warr, Lord Clifford, Sir Thomas Lipton and others, at different times and from various sources. Shrewsbury and Challiner detachable rims are fitted to all four wheels of the car, and the tyres, of which there are altogether three complete sets, will be transferred from one wheel to another every 100 miles, so as to give every individual tyre an equal chance. A distance of about 120 miles is to be covered every day, and an observer, appointed by the committee, is to be carried the whole of the time. At nightime the car is locked up, and the key handed over to the observer.

At the time of our going to press, two days' running had been completed, the tests being expected to last about ten weeks.

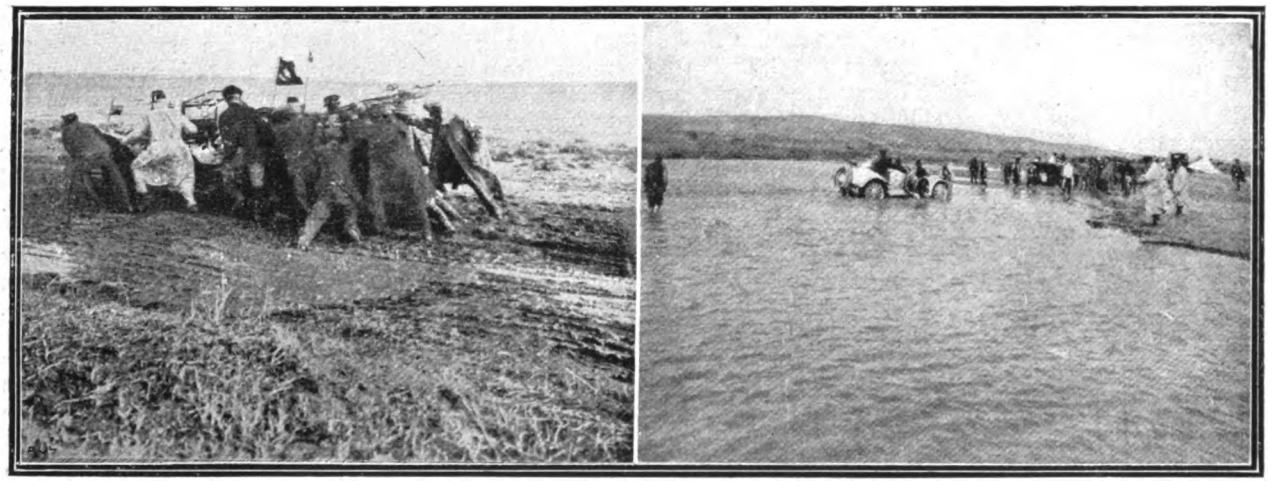
New American Records.

THE American Automobile Association have now officially recognised the following records which were made during the 500-mile race at Indianapolis recently. With the exception of the 500 miles figures, faster times were made by the Mercedes driven by Ralph de Palma, but, according to a rule of the A.A.A., his records could not be recognised, as he did not complete the full distance of the race.

Distance. Miles.	Car.	Driver.	Time.
100	Fiat ...	Tetzlaff ...	1 : 13 : 37 : 25
150	Fiat ...	Tetzlaff ...	1 : 49 : 52 : 84
200	Fiat ...	Tetzlaff ...	2 : 25 : 59 : 52
250	Fiat ...	Tetzlaff ...	3 : 07 : 13 : 94
300	National ...	Dawson ...	3 : 48 : 49 : 30
350	National ...	Dawson ...	4 : 25 : 15 : 27
400	National ...	Dawson ...	5 : 04 : 14 : 23
450	National ...	Dawson ...	5 : 44 : 04 : 54
500	National ...	Dawson ...	6 : 21 : 06 : 03

New Side-car Records.

ON July 25th at Brooklands, Stanhope Spencer and Lewis Hill on a Rudge machine with side-car beat the one and two hour records for this class of machine. In one hour they covered 43 miles 33 yards and in two hours a distance of 80 miles 1,250 yards, while the time for 50 miles was 1h. 10m. 7s. The previous hour record was 40 miles 1,660 yards.



A COUPLE OF SCENES ON THE BUDAPEST-CONSTANTINOPLE TOURIST CAR CONTEST.—On the left, helping the cars along the Turkish roads; and on the right, a sample of one of Nature's obstacles which had to be got over.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

New Members.—The membership of the Association is now approaching 52,000. Among many distinguished names recently added to the register of members are the following:—

Lord Wenlock, Lord Bingham, Lord Southampton, the Earl of Jersey, H.R.H. Prince Firdarsingh, the Marquis de Jaucourt, the Rt. Hon. Rev. Lord Bishop of Ripon, Sir Owen Philipps, Bt.; Sir Thomas Pile, Bt.; Sir Archibald Edmondstone, Bt.; Sir E. C. Wills, Bt.; Sir Robert Harvey, Bt.; Sir Charles Ross, Bt.; Sir George Pigot, Bt.; Count Wrangel; also the following members of Parliament:—Mr. Oliver Locker-Lampson, M.P.; Mr. Arthur Tell, M.P.; Mr. J. A. Shaw Mackenzie, M.P.; and Captain Cecil Norton, M.P.

Special Road Notice to Members.—During the last few months several motorists have been summoned under Section 1 of the Motor Car Act for driving dangerously through the village of Mount Sorrell, near Loughborough (Leicestershire). Members are urged to drive their cars very carefully along the long straggling road leading through Mount Sorrell.

Speed Limits.—*Holyhead.*—The Local Government Board has issued an Order granting a ten-mile speed limit on certain roads within the Urban District of Holyhead.

Stansted-Witham.—Applications have been lodged by the County Council of Essex for ten-mile speed limit Orders for Stansted and Witham. The latter application applies to an extension of the limit already in force at Witham. Members conversant with the roads in these districts are invited to communicate their views as to the necessity or otherwise of proposed limits to the secretary.

Signs.—During the month of July the Association supplied over 150 road signs. This number included 70 school signs, 15 direction signs, 25 village signs, and 40 danger signs.

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THE KNIGHT-ARGYLL PATENT CASE.

BELOW we give Mr. Justice Neville's judgment in the important and interesting case recently concluded in the Chancery Division of the Law Courts. In order to avoid misunderstanding as to the nature of the result, it is as well to emphasise the fact that while the Argyll Company, as defendants, were protecting the engine that they are actually building, the Knight and Kilbourne Company, as plaintiffs, were only supporting the original Knight patent of 1905, which is altogether different from the subsequent 1908 patent under which the new Daimler engines are built. Thus, the effect of the judgment, which is to establish Messrs. Argyll in their right to manufacture their engine, in no way affects the validity of the patent rights that cover the engines on the Daimler cars, which patents, as a matter of fact, were not even under discussion. The original Knight patent described an engine with a single moving sleeve, whereas the modern Daimler engine has two moving sleeves. In the litigation, an engine built according to the original Knight specification was found to develop no more than a small fraction of the power corresponding to its R.A.C. rating, which practical fact coupled with other legal and technical arguments led the judge to decide that the holders of the original Knight patent could not be supported in their claim that it gave them master rights in the field invaded by the Argyll design.

The following is the judgment of Mr. Justice Neville :—

The sliding valve used for the purposes of inlet and exhaust was a mechanical device well known and used in connection with steam and other engines. After the introduction of the internal-combustion four-cycle engine, mechanicians turned their attention to the question of its application to the four-cycle engine, but there were difficulties in the way, owing to the fact that during two strokes of the piston, inlet and exhaust, the appropriate valves must be open, while during the remaining two, compression and explosion, the cylinder must be tightly sealed. The cylinder, therefore, must be open at the first and last stroke of the piston which follow one another, and sealed during the two intermediate strokes.

In steam and other engines methods of opening and closing inlet and exhaust valves by means of a reciprocating cylinder or a reciprocating sleeve within a cylinder were known. Dawson and King endeavoured to apply the idea to four-cycle engines by attaching to the piston a sleeve containing a port, which, by virtue of a rotary movement applied to the piston and sleeve together, registered with a series of inlet and exhaust ports or with slots placed on one side of the cylinder only, the sleeve making a complete revolution once in four strokes, so that during one-half of its rotation, or two strokes of the piston, the port of the sleeve remained out of registration with any of the openings in the cylinder. You had here, therefore, an internal sleeve, which, by a suitable movement imparted to it through the piston, opened the inlet ports during one stroke, the exhaust during another, and kept the cylinder closed during the remaining two. This seems to me to have solved the problem theoretically, but the evidence does not show that any engines were made in accordance with these patents or that if they had been made they would have been efficient engines. The plaintiff and another in 1905 conceived the idea of reciprocating the cylinder itself within a fixed head and valve seating by a movement differing from the movement of the piston in such a way that the cylinder should move rapidly during two strokes of the piston and remain substantially at rest during the other two, the ports being so arranged that during one of the rapid movements the inlet port should register and the exhaust ports during another, both being closed during the remaining two strokes of the piston. This invention appears to me to have solved the problem in another way and about as satisfactorily as those which had preceded it. An engine was invented which no one at the time, so far as the evidence goes, thought it worth while to translate into metal. An experimental engine was made for the purposes of the action, which in my opinion was for practical use worthless, and I do not think that by any deviations from the specification within the fair limits of the patent any engine could be made which could bear comparison with the poppet-valve engines on the market in 1905, or which at that date would have been of any commercial value. The method of opening and closing the valves appears to me to be inconsistent with a satisfactory result for a high-speed engine.

To claim for the patent for this invention the title of a master patent is, I think, extravagant. Dawson and King had solved the problem of the application of sliding valves to a four-cycle engine unsatisfactorily. The plaintiff's patent solved the problem in a way which was little, if any, more satisfactory. A claim in the plaintiff's patent for all ways of solving the problem in which the movement of the cylinder or of a sleeve in the cylinder was variable to the movement of the piston, could not, in my opinion, be sustained. We shall see upon examination of the specification whether such claim was made.

The inventors declare the primary object of their invention to be to provide an improved form of internal-combustion engine in which the moving parts shall be directly connected and positively acting and the use of poppet valves and springs avoided. They declare that the invention consists in certain features of novelty in the construction, combination and arrangement of parts all as fully described and more particularly pointed out in the claims: They then enumerate the parts and declare that either the cylinder described or a member telescoped with it shall be operatively connected with the piston, but so far we have not been told which of these parts is to be moved; the invention being in effect declared to be compatible with the movement of either. They then proceed to tell us that in the exemplification of the invention shown in the drawings of the two telescoped parts the cylinder is the one to be moved. I think, as a matter of construction, that the exemplification is an exemplification in which one of two alternatives is adopted; but that subject to that the succeeding parts of the specification describe the invention itself and not merely one way of carrying it into effect. As I read the specification the invention is for a combination and not for all means of carrying a new principle into effect, nor for a novel application of a principle. When we come to consider the claim I think this is made clearer. Claim 1 is the widest claim, and turning to it it is to be noted that "telescoped" has no technical meaning and that in English its meaning is derived from the analogy of the tube of a telescope but is not applied with any degree of accuracy. In the claim it refers to the relation borne by a fixed annular groove to a cylinder sliding up and down, and in this sense the use of the word does not seem very accurate. The movement is described as relative to the aforesaid telescoped part and variable with relation to the movement of the piston, the movement to effect the covering and uncovering of parts. There is no technical meaning attached to the word "variable" in this connection, and I think what the inventors meant to express by the use of the word is a movement of a part which, though operatively connected with the piston, varies or differs from the movement of the piston. If the plaintiff's monopoly extends to the making of any internal-combustion engine which has a cylinder formed by two parts, one fixed and the other moving against it with a movement which differs from that of the piston, it is a monopoly of an extremely wide character. It is upon this view of the patent alone, I think, that the defendants could be said to infringe. It is clear upon the facts, indeed there is no dispute about it, that the defendants employ a different movement brought about by different means, but they have a cylinder composed of two members one of which is fixed and the other moving against it with a movement which differs from the movement of the piston. The question as to what is a cylinder and where its parts begin and end is open to endless and to my mind wholly unprofitable discussion. If the defendants infringe, I think the engines of Dawson and King had they appeared after 1905 would have infringed also, for they have a sleeve, the movement of which differs from that of the piston if you consider the operative functions of the piston and sleeve separately, and I think in considering a master patent for an invention of the merit and novelty claimed for the plaintiffs the Court would probably have held the attaching of the sleeve to the piston so that the latter perforce partakes of the movement required only for the sleeve a merely colourable modification. It appears to me that the device of the defendants follows very much more closely the devices of Dawson and King than it does that of the plaintiffs.

As I have stated before, I think, having regard to the state of knowledge at the time and the character of the patentee's invention disclosed by the specification, any such claim as that contended for on behalf of the plaintiffs would have been far too wide, but turning to the claim again I do not think that any such claim was made. Claim 1 is for a combination of two things, one improvements in an internal-combustion motor comprising a novel arrangement of parts in combination with means "substantially as herein described" for imparting the required movement. But it is said that by amendment the position of the proposition "for" has been changed, and it now reads "for substantially as herein described imparting the required movement," with the result that the "substantially as herein described" applies to the movement and not to the means of producing it, and that every movement which is relative to the fixed part and variable to the piston for covering and uncovering the ports

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is included. For my part I see little or no difference between means substantially as described which impart a movement and means which substantially as described impart it. If they are not substantially as described it appears to me they cannot substantially as described impart a movement. They may impart the movement, but it appears to me, being substantially different, they cannot impart it in substantially the same way. If, on the other hand, the amendment has upon the face of the specification enlarged the claim it must in my opinion be rejected, inasmuch as such enlargement is prohibited by statute law. I have been told that I am forced to give effect to the amendment, however much it may appear to be *ultra vires* in obedience to prior decisions of the Courts. I find no such decision. True it is that the Courts have held that amendments sanctioned by the proper official are binding and cannot be re-opened in a subsequent action. This does not in my opinion apply to an amendment which upon the face of it is *ultra vires* of the authority given by the Act. Courts of law in my opinion sit to enforce the law and not by self-imposed limitations to countenance illegality.

The present case, I think, shows the great care which should be exercised in allowing amendments to the claims in a specification, particularly where there is no opposition. The Comptroller was doubtless told, as I have been told, that the alteration was merely a verbal one, but clearly it could not have been intended to narrow the claim; it was therefore either wholly immaterial and should have been disallowed on that ground, or it must have been intended to widen the claim and was therefore illegal. In the result it has in the present action been relied upon in effect as altering a claim of an obviously limited character into one of the widest possible extent.

My conclusion is that upon the true construction of the specification the defendants have not infringed.

There is one other point with which I must deal, and it is this. By reason of a mistake in the drawing and in the description of the operating machinery, an engine made in conformity with the specification would not work at all, the inlet and exhaust valves not being opened and shut as described. The mistake appears to have been the placing the piston rod on the wrong side of the wheel to which it was attached for the purpose of actuating the mechanism operating the cylinder. It was said that the mistake was an obvious one, and that any competent person would at once see, on finding that there was a mistake, how it must be corrected, all that was required being to transfer the piston-rod to the other side of the cogwheel and to turn the machinery the reverse way. The contention appeared to me at first plausible, naturally enough, since it is always easy to guess a riddle when you have been told the answer. The evidence called by the defendants has, however, satisfied me that the specification as it stands presents the engineer with a mechanical problem of some difficulty, and that though some may be able to solve it with comparative ease, to many competent draughtsmen and engineers the solution would present considerable difficulty. It is noticeable that the solution said to be so obvious did not occur in the first instance to any of the witnesses set to solve the problem, and I think the mistake has rendered the specification misleading. The point is only of minor importance in the present action, inasmuch as in my opinion there has been no infringement by the defendants.

So far as I am concerned the attempt fails, and I must dismiss the action with costs.

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MOTOR BOATING.

London to Cowes Race.

OF the five boats which started in the British Motor Boat Club annual London to Cowes race, on Saturday last, only two succeeded in finishing on time at the Isle of Wight. A start was made at nine o'clock from Erith, and the first boat to reach Cowes was Mr. T. A. Comber's "Flora," and she took the S. F. Edge Challenge Cup for being the first boat in, arriving at 5h. 15m. 42s. on Sunday morning. A little more than an hour later—at 6h. 20m. 8s.—she was followed by Mr. George Paxton's "Braemar," which on M.M.A. rating and time allowance won the race. Of the other competitors, Mr. Harry Preston's "My Lady Molly" went aground off Shoreham, but subsequently got off; while Mr. Harry Tate's "Mimic" and Mr. McClean's "Allegro" were weatherbound at Newhaven.

Transatlantic Motor-Boat Trip.

A FEW days ago the 55-ft. motor boat "Detroit," with Capt. Thomas Fleming and a crew of four, left New York, with the object of ultimately making St. Petersburg. They will call at Queenstown and Falmouth, and hope to complete the transatlantic voyage in three weeks—a fortnight less than the previous record made some eight years ago by the "Ariel Abbot Low." Capt. Fleming last year crossed the Atlantic in a small sailing boat.

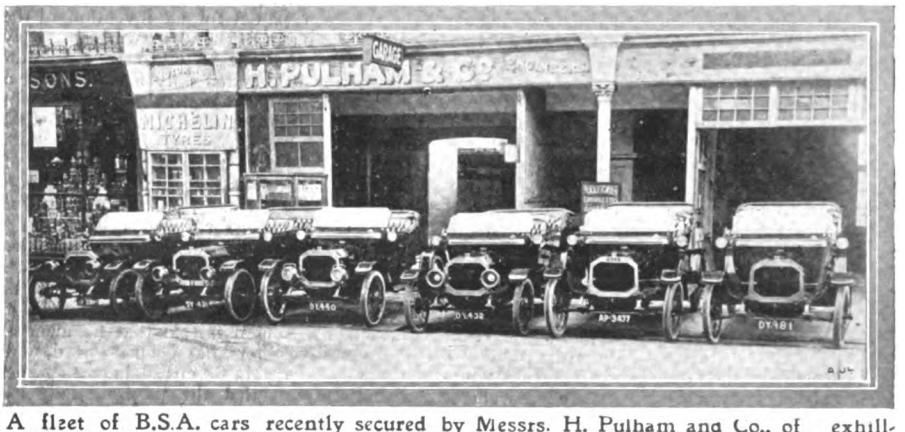
Hydro-Aeroplane *versus* Motor Boat.

A HANDICAP race between Mr. Grahame-White's Farman hydro-aeroplane and Mr. Harry Preston's new 55-ft. cabin cruiser "My Lady Molly," at Brighton on Monday, aroused a good deal of interest locally. The course was from Black Rock to the West of Hove, and back, and the flying machine had to give the motor boat 12½ minutes' start, and also had to go two laps to "My Lady Molly's" one. The finish proved a very good one, Mr. Grahame-White carrying Capt. Danvers as passenger, just managing to win with about ten yards to spare.

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Daimler Works Scholarships.

THOSE who are thinking of applying for the five Daimler works scholarships which were recently offered, are reminded that the entries close on August 7th. These scholarships give the pupil training in the works without the payment of a premium, and carry a number of other substantial advantages, which should appeal to those who wish to obtain a thorough knowledge of motor car construction. Particulars can be obtained from the Pupils' Department, Daimler Works, Coventry.



A fleet of B.S.A. cars recently secured by Messrs. H. Pulham and Co., of exhill-on-Sea, where these cars, amongst other places, appear to be in very great vogue.

A Record Motor 'Bus Garage.

THE motor omnibus garage at Willesden which will shortly be opened by the London General Omnibus Co., and which will have accommodation for over 500 motor 'buses, is said to be the largest garage for this type of vehicle in the kingdom.

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CURRENT ITEMS OF INTEREST.

Still Another Index Mark for London.

ALTHOUGH it is only quite recently that a new index mark for London—LF—was assigned, the London County Council finds that the supply of numbers under this mark is very nearly exhausted, and so has applied for a new mark, LG. This will make the ninth mark in use, the others being A, LA, LB, LC, LD, LE, LF, LN.

More Motor Mail Vans.

ALONG with the other branches of vehicular traffic the mail services are gradually nearing the time when they will be all motor. Messrs. Macnamara and Co., Ltd., who for three-quarters of a century have contracted for the carrying of mails in the Metropolitan area, have just renewed their arrangements with the Post Office, and are taking advantage of the occasion to put into service a large number of new motor vans. This will mean that 60 per cent. of the vehicular mail transport in London will be carried by motor cars, and just on 100 motor vans will be kept busy day and night on the work.

Lord Shrewsbury Entertains Lancashire Traders.

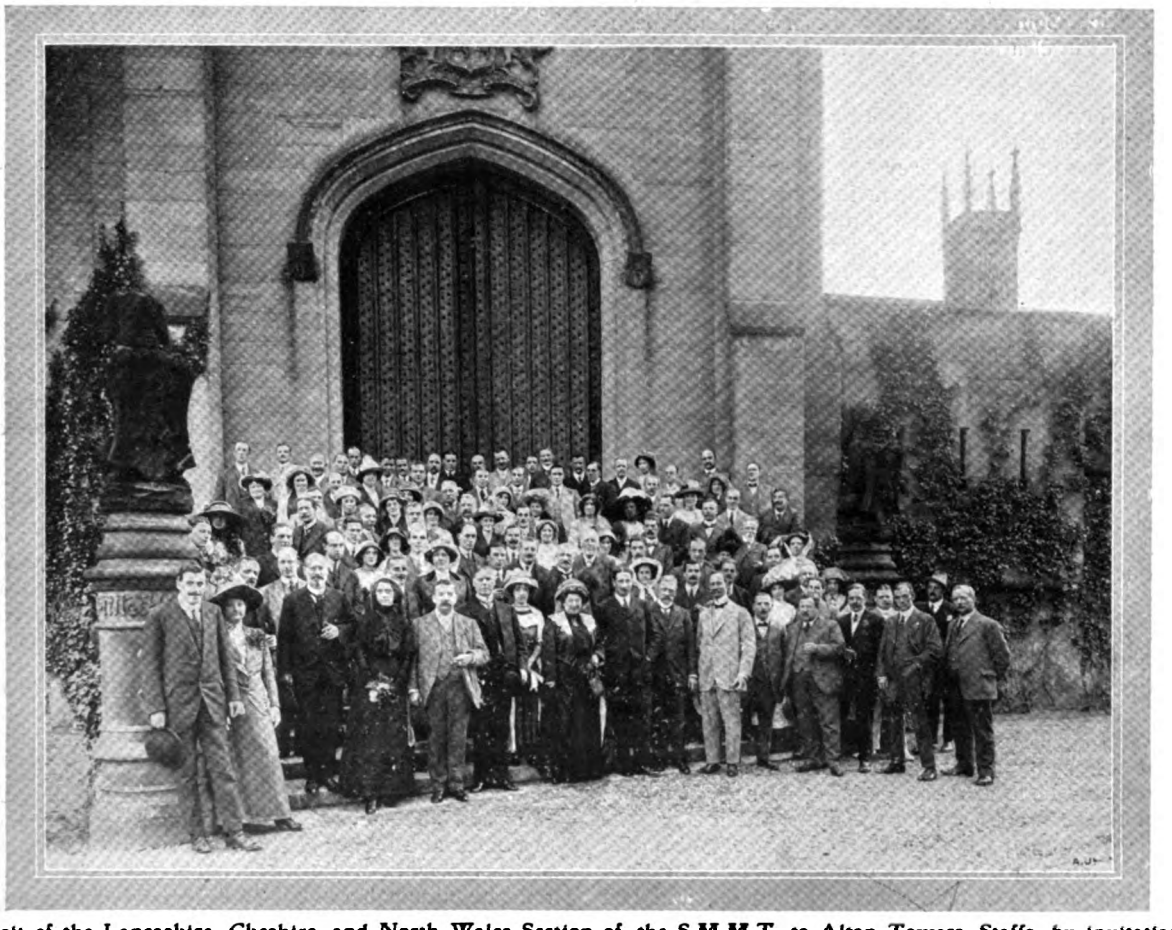
A VERY enjoyable time was spent by members of the Lancashire, Cheshire and North Wales section of the S.M.M.T. on Saturday last, when, at the invitation of the Earl of Shrewsbury and Talbot, they paid a visit to Alton Towers. The rendezvous was the Midland Hotel, Manchester, where the guests were greeted by Viscount Ingestre and Mr. Frank Shorland, of the Clement Talbot Company, of which Lord Shrewsbury is Chairman. When all had assembled, a procession of about 40 cars started for the 46-mile drive through Stockport, Macclesfield and Leek to Alton. On arrival there luncheon was served, and the visitors subsequently spent an enjoyable time inspecting the many interesting items in the mansion.

R.A.C. Driving Certificates.

NEARLY one-third of the applicants for the R.A.C. driving certificates fail to pass at their first attempt, according to some figures just published by the Club. It appears that during the half-year ending with June, 740 candidates were examined for the drivers' certificates (paid drivers, owners, and taxicabs), and of this number 230 failed to satisfy the examiners in the first instance, but were eventually passed. Apart from the weekly examination at the R.A.C., examinations were held in nineteen provincial towns, and one at Malta.

A Quarter's Harvest at Kingston.

THE fines imposed upon motorists at Kingston for alleged infractions of the speed-limit during last quarter amounted to £370.



Visit of the Lancashire, Cheshire, and North Wales Section of the S.M.M.T. to Alton Towers, Staffs, by invitation of the Earl of Shrewsbury and Talbot.—A group of the guests at Alton Towers, including Lord Ingestre (centre), Messrs. J. Newton, Frank W. Shorland, S. Norris, T. Garner, Ellis Green, S. Shirley, J. G. Looker, R. Peacock (Chief Constable of Manchester), &c.

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Sutton Coldfield Asks for Prohibition Order.

IT was rather striking that at a recent Local Government Board enquiry as Sutton Coldfield, in connection with the Borough Council's application for an order to prohibit motor traffic on certain short lengths of road in the borough, that no evidence was forthcoming as to any accidents having occurred on any of the roads, while the police were not called in support of the application. It was contended by the R.A.C., the A.A. and M.U. and the Midland Automobile Club, who opposed the application, there was nothing in the nature of the roads to render motor traffic specially dangerous.

Motor Guns at the Front.

ACCORDING to a despatch from Genoa, the Italian military authorities have built, at the Turin Arsenal, a couple of motor war cars which have been sent to the Front, and it is proposed to supplement them by ten similar vehicles. The cars are capable of carrying twelve soldiers and the armament consists of four quick-firing guns. The range of action is put down as 300 kilometres and the speed at 25 m.p.h.

A Road Improvement at Balmoral.

AS a result of negotiations between the Scottish A.C. and the County Road Surveyor, a welcome improvement is being effected on the South Dee-side road between Ballater and Balmoral. At Knocks Brae there is a very sharp and blind turn with a high bank at the angle, just at the steepest incline. This was considered by the Dee-side District Committee, and work has already been commenced in clearing the corner.

Accidents and Speed Limits.

AT a local enquiry, held with regard to the application of the Essex County Council for a speed limit at Wanstead, the police in their evidence gave some interesting statistics relating to accidents in which motor vehicles were concerned during the past three years. From these it appeared that in no single instance was the speed of the vehicle alleged to have been more than ten miles an hour at the time of the accident. Strong opposition to the proposal was offered by the R.A.C., the A.A. and M.U., the Essex County A.C. and the West Essex A.C.

The Cry is Still They Come.

WITH the high-sounding title of "The Society to Protect the Public against Motor Perils, Street and Traffic Accidents," a new organisation has sprung into being, with offices at St. Stephen's House, Westminster. We wonder what the public will say to protection by the S.P.P.M.P.S.T.A., and whether it is another case of "Save us from our friends."

What the Policeman Saw.

A DAY or two ago a motorist, who lives a little off the beaten track in Kent, was somewhat surprised to have a policeman cycle up to his house, and ask whether there had been a fire in the neighbourhood. He explained that from the village two or three miles away he had seen a light which appeared to proceed from the house in question, and he formed the impression that the house was on fire, so after calling out the local fire brigade he rode over on his bicycle to investigate. What had really happened was that the motorist had driven up to this house with his C.A.V. lamps switched on, and had allowed them to remain so while the car stood for a few minutes before being driven into the garage. One can imagine the consternation of the local policeman when matters were explained to him.

A Car for Herts Chief Constable.

IT is interesting to hear that Major Law, Chief Constable of Hertfordshire, a county noted for its freedom from police traps and motor car accidents, is to be provided with a motor car for police purposes at a cost of £250 per annum to the county.

A German Firm Requires British Agents.

A GERMAN firm manufacturing a car which has a good reputation in its own country is prepared to appoint sole concessionaires for Great Britain, Ireland, and the Colonies. Those who are interested in this proposition should write to X. Y. Z., care of the Editor, AUTO., 44, St. Martin's Lane, London, W.C.

New Rudge Productions.

IT is announced by Messrs. Rudge Whitworth, Ltd., that it is in contemplation to add in the near future a Rudge side-car and a four-wheeled cycle-car to the products of the company. Both these vehicles will be awaited with considerable interest by those who are interested in these two types of machines.

Funds for Road Improvements.

REPLYING to a question in the House of Commons last week, Mr. Masterman stated that the total sum paid to the credit of the Road Improvement Fund up to July 24th was £2,398,414, of which £1,459,277 was derived from the petrol tax and £939,137 from the proceeds of carriage licences. Advances of £2,250,000 had been made or indicated, leaving a balance of £148,322 unallocated.

Marking Dangerous Bridges in Scotland.

THE Scottish A.C. has decided to follow the lead of the English clubs, and mark the approaches to bridges which are dangerous by reason of awkward turnings, &c. The system of marking will be the same as in England—*i.e.*, a white diamond about 6 ft. long, which will be visible from the approaching road. The Scottish A.C. is now collecting information as to suitable bridges for marking, and they will be pleased to hear from motorists on the subject.

Heavy Motors on Richmond Bridge.

THE Middlesex County Council have decided to apply to the Local Government Board for a five-mile speed-limit for heavy motors passing over Richmond Bridge. During the discussion on the matter it was stated by one member that motor 'buses crossed the bridge at the rate of one every half minute.

Who Rushed the Toll?

A SOMEWHAT curious case was heard at Fareham recently, when a motorist was accused of rushing the toll-gate at Bursledon Bridge. According to the collector, he opened the gate, and the passenger seated next to the driver of an approaching car asked how much the toll was. On hearing that it was one shilling, the driver was alleged to have increased his speed and driven away without paying, whereupon the number of the car was telephoned to the Fareham police. On being stopped by the police the motorist said the toll had been paid, and in his evidence the passenger said he threw a shilling to the collector and was certainly under the impression that he caught it. This evidence was corroborated by the owner of the car and by the chauffeur, both of whom swore that another car had overtaken them shortly after leaving the toll-gate, although the toll-collector stated that no other cars passed through the toll at that time. The bench dismissed the summons, and allowed the defendant, who was represented by Mr. Granville N. Kenyon, under the R.A.C. Free Legal Defence Scheme, five guineas costs.

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A Daimler Handbook.

EMINENTLY practical is a little book which has just been published by the Daimler Co., dealing with 1912 type of Daimler cars. The author, Mr. Joseph A. Mackle, B.Eng., has striven to make the book thoroughly comprehensive, and yet not unduly technical. The first part is mainly descriptive, and the large number of line and photographic illustrations which are introduced help considerably in following the positions and functions of the various parts. The second section deals with lubrication, a most important matter, which should be seriously studied by all owners and drivers, and this is followed by a section on driving and the care of the car, while there is also a scheme for systematically going to work to locate any trouble. The book concludes with an appendix giving the various items of information of use when touring, &c. A copy of the book will be sent post free to owners of 1912 Daimler cars, while anyone else may obtain a copy by remitting the cost price, eighteenpence, to the Daimler works, Coventry.

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NEW COMPANIES REGISTERED.

Private Companies.

Commercial and Marine Engine Co., Ltd., Devereux Chambers, Temple, E.C.—Capital £30,000, in 2,000 preference shares of £5 each, 15,000 ordinary shares of £1 each, and 20,000 deferred shares of 5s. each.

"F. N." (England), Ltd., 6, Old Jewry, E.C.—Capital £20,000, in £1 shares. Manufacturers of and agents for motors, engines, &c.

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PUBLICATIONS RECEIVED.

The Modern Motor Car. By W. Galloway Duncan, M.I.M.E. London: Crosby Lockwood, and Son. Price 2s. 6d. net.

The Daimler Handbook. By Joseph A. Mackle, B.Eng. Coventry: The Daimler Co., Ltd. Price 1s. 6d.

Motor Roads to London. London: The Mitchell Motor Works and Garage, 114, Wardour Street. Price 1s. 6d.

From the Car Behind. By Eleanor M. Ingram. Philadelphia and London: J. B. Lippincott Co. Price 6s.

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ROUNDABOUT NOTES.

SNOWDON has been climbed on a motor bicycle, Mr. L. H Spencer, of Uxbridge, whose mount was a 3½-h.p. Rover, fitted with Sturmey Archer three-speed gear, having achieved the feat.

WRITING of his 14-h.p. Wolseley, obtained in 1908, Mr. Claude A. Lowe, managing director of Quibell Bros. (South Africa), Ltd., says:—"This 14-h.p. Wolseley car has travelled all over South Africa, and with the exception of the Orange Free State, has quartered the country from Cape Town to North of Pretoria, including every road and bypath in hilly Natal. In the process it has negotiated every difficult pass in South Africa, and on innumerable occasions penetrated to places considered impossible to motor cars, and where cars have never been seen before. Though no actual record has been kept, counting of known mileages and striking a general average indicates that over 50,000 miles have been traversed. A complete set of spares for the engine were originally supplied, *not a single one has been used*, and the last pulling down shows no necessity for them, the whole engine being apparently as good as new and developing full power. Some of the running gear and the wheel bearings are now being renewed, after which the car will be to all intents and purposes a new one."

WRITING to the Alliance Spring Co., Pentonville Road, London, Mr. Horace M. Bowden says: "Some few days ago you made four new inlet and four new exhaust springs for my 12–15-h.p. Vivinus racing car, and it was with these fitted to the engine that I won so successfully the 70-m.p.h. Long Handicap at Brooklands on May 27th, beating a field of eighteen. The springs are excellent and have given me every satisfaction; this, together with the prompt way in which you executed my order, is most creditable."

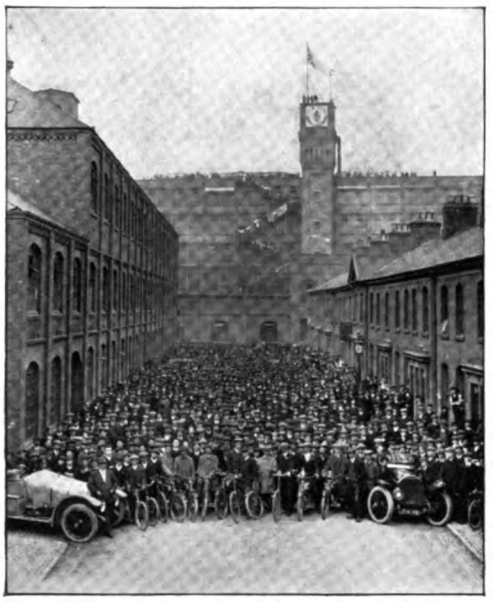
A VERY successful gathering was the annual water gala of the Athletic Club connected with Messrs. Drummond Brothers, Guildford, on Saturday week. About 300 entries were received for the twenty-nine events which made up the programme, and in spite of the expeditious way in which the events were run off, one or two finals had to be postponed. The employees, to the number of about 250, were entertained to lunch by the firm in a tent on the banks of the river Wey, and after the racing the prizes were distributed by Mrs. Drummond.

CONGRATULATIONS to Mr. H. Douglas Kerr, who has been appointed assistant manager of the Tyre Sales Organisation of the North British Rubber Co., Ltd., Clincher House, 169, Great Portland Street. He will still continue to direct the publicity of his department.

MESSRS. SPYKER CARS, of 97–98, Long Acre, have just published a very striking and original poster, copies of which they will be pleased to send to any of our readers who apply for same.

IN the French Grand Prix race, we understand that every car, without exception, was fitted with a Bosch magneto, and the Belgian Grand Prix only just missed having the same record, 25 out of the 26 cars being so equipped.

WE understand that The Maudslay Motor Co., Ltd. (Parkside, Coventry), have now completed the re-arrangement of their London agency, and that their garage at Adams Mews, Cheyne Walk, Chelsea, has been taken over by Messrs. Sydney Westall and Co. Messrs. Watkins and Doncaster, 12, Woodstock Street, Bond Street, are their wholesale and retail agents for London and the home counties. Mr. Cyril C. Maudslay has retired from the managing directorship of the company, but retains his seat on the board.



A VERY striking picture is that reproduced above, in which are seen some of the 2,500 employees of Rudge-Whitworth, Ltd., leaving the Coventry factory. There are also 500 hands employed at the Birmingham branch of the works. The Coventry works have an area of 400,000 sq. ft., while that at Birmingham is 53,000 sq. ft. In spite of the large staff, work has been carried on at full pressure for some time, and overtime has had largely to be resorted to, while some of the departments have been working night shifts. Apart from the ordinary bikes the firm have been hard put to it to keep pace with orders for motor-bicycles, while the increased popularity of the Rudge-Whitworth detachable wire wheels has led to great activity in that department.

THE employees of the Mass motor works had their annual outing on Saturday last, when a jovial party went down to Clacton-on-Sea. Dinner was served at the Brunswick Hotel, where the chair was taken by the works manager, Mr. J. R. Richardson, who proposed the toast of Mr. W. J. Massey Horniman, which was heartily responded to.

MR. C. M. SMITH, who will be remembered as the designer of the 60-h.p. Thames car which broke all the world's records from 50 to 300 miles, and was manager of the motor department of the Thames Ironworks before joining the Adams Manufacturing Co. last year, is shortly leaving for New Zealand, where he is joining Mr. P. R. Dowson in a motor agency business. He is leaving the Old Country on August 30th.

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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

29,293. December 29th, 1911. A Rotary Distributor for Internal Combustion Engines. Georges Sonck, rue de Lille, Saint Andre (Nord) France.—This invention relates to a rotary distributor for multi-cylinder internal combustion engines, in which, for the purpose of facilitating lubrication, the said distributor has, in addition to its rotary movement, which ensures the distribution, an alternating axial movement which facilitates its lubrication and prevents undue wear. This invention has for its object to utilize for the return movement of the valve instead of the weak atmospheric pressure due to the reduction of pressure in the interior of the cylinder at the suction period, the action of high pressures produced in an adjacent cylinder by explosion or compression, during the suction or exhaust in the cylinder in question. Fig. 1 is a vertical section on the line, A–B, of Fig. 2, of two adjacent valves. Fig. 2 is a horizontal section on the line, C–D, of Fig. 1. The split sleeve, 1, provided with a distributing port, 2, and split along a line, 3, revolves

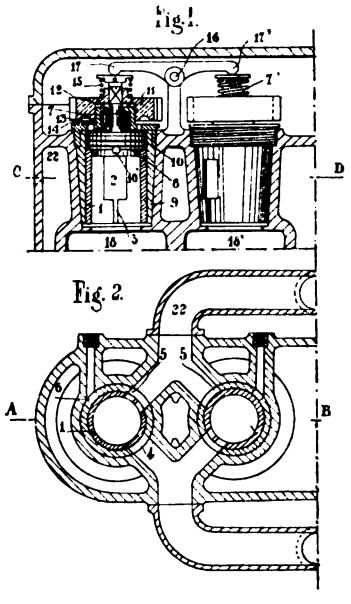


Fig. 2.

inside a chest or casing, 9, provided with admission ports, 4, exhaust ports, 5, and, if desired, with starting ports, 6. The movement of the sleeve, 1 (at half the speed of the motor shaft) is obtained by a shaft, 7, firmly connected with a plate, 8, revolving in the interior of the casing, 9. Rings, 10, ensure the tightness of the joint. This plate is prolonged in the interior of the sleeve, 1, and is provided with a stud or button, 10^1, which engages in a corresponding aperture in the sleeve. It is by means of this stud, 10^1, that the shaft, 7, carries the sleeve with it. The upper part of this shaft, 7, is rectangular, and passes through the hub of a toothed wheel, 11, serving to drive it. Ball races, 12, and annular ball bearings, 13, diminish friction between the various parts. The said wheel, 11, is mounted in a bearing socket, 14, firmly connected with a cover, 22, covering the casing, 9. The end, 17, of a lever, fulcrummed at 16 rests on the end of the shaft, 7, and its other extremity, 17^1, similarly rests on a shaft, 7^1. If the distribution in the various motor cylinders is regulated in such a way that an explosion or a compression is produced in the cylinder, 18^1, at the moment when suction is taking place in the cylinder, 18, it is evident that when the shaft, 7^1, is lifted in consequence of this explosion or compression, the shaft, 7, will be lowered, and *vice versâ*. The result is that each of the sleeves will describe not only a simple rotary movement, but also a reciprocating movement.—July 10th, 1912.

3,706. February 14th, 1912. Improvements in Carburetters for Internal Combustion Engines. Alfred Boorer, Junior, 9, London Road, Horsham.—This invention relates to carburetting apparatus for internal combustion engines of the multiple jet type, in which the jets are brought into action in succession by a rotating valve, which also serves to admit air to the cylinders when all the jets are cut off. A cylindrical plug valve is employed, with a groove for the passage of the combustible mixture, and the air, and this valve is mounted in the angle of an elbow-shaped pipe. One object is to regulate so as to meet the requirements of the engine exactly at its various speeds and loads both as to amount and strength of mixture.

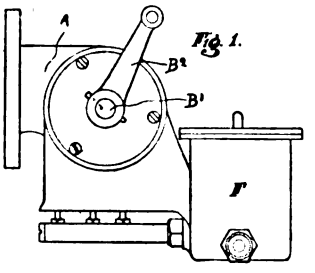


Fig. 1.

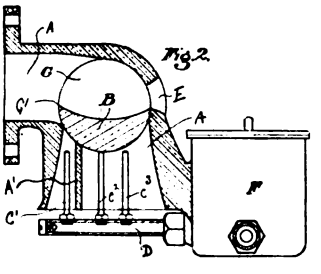


Fig. 2.

Another object is that the mixture shall be conducted with the least possible amount of baffling from the jets to the engine. Another object is to prevent suction of lubricant past the pistons of the engine, and consequent fouling, when running down hill with the mixture cut off. Fig. 1 is a side elevation. Fig 2 is a vertical section through the mixing chamber and controlling plug. A is an elbow-shaped tubular main casing. B is a cylindrical controlling plug, which is adapted to turn in a cylindrical boring at the "elbow" of the casing, and B^1 is its trunnion end. B^2 is a crank arm attached to the trunnion, through which it may be turned by any convenient means. That part of the passage through the casing, which is on the jet side of the controlling plug forms the mixing chamber, and is divided by a partition, A^1, into two chambers of different size. This part is termed the duplex mixing chamber. C^1, C^2, C^3, are petrol jets, of which one, C^1, is situated in the smaller chamber, and the others, C^2 and C^3, in the larger chamber of the duplex mixing chamber. The orifices of the jets are in close proximity to the controlling plug. D is a detachable jet holder along which the petrol flows to the jets from the float chamber, F. E is an air port, which is opened to the engine by the groove, G, in plug, B, directly the gaseous mixture is cut off by the plug, so that when running down hill with the mixture cut off air is admitted to the engine cylinder, and this avoids suction of lubricant past the engine piston or pistons. To start the engine the plug, B, is rotated in a counter-clockwise direction until the air port, E, is closed, and the first jet, C^1, is just uncovered, the lower edge, G^1, of the groove in plug, B, forming one side of the opening to the chamber containing jet, C^1. By this means a small volume of rich mixture will be obtained. In the case of the engine being worked at light load, the plug, B, is rotated until the jet, C^2, is almost reached by the edge, G^1, of the groove, G, and while the jet, C^2, is still baffled by the plug a larger quantity of air is now admitted and the required dilute mixture is obtained. When more power is required the plug is rotated to a further extent so as to uncover more air space and the remaining jets. When full power at slow speed is required, as, for example, when travelling uphill, the plug is rotated so as to just uncover the last of the jets, C^3. But in the case of running at high speed on the level, the excessive suction on the jets is prevented by rotating the plug, B, still further, and admitting more air through the passage between jet, C^3, and the port, E.—July 10th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published August 1st, 1912.

15,911. E. S. Bond. Change-speed gears.
15,936. C. W. and R. E. R. James. Motor ploughs
16,348. A. and W. J. McBain. Bearings.
16,616. C Walton. Detachable wheels.
16,740. E. and H. Aron. Wind-screen adjusters.
17,688. Aachener Stahlwarenfabrik Fafnir-Werke A.-G. Reversing gear for I.C. engines.
18,701. L. J. Flint. Electric ignition.
19,025. J. E. F. Cambessédès. Magneto ignition.
19,134. J. J. G. Pauilhac. Fluid-pressure clutches.
19,748. H. L. Cummins. Rotary engines.
20,548. C. J. and G. Wilson. Mudguard for motor 'buses, &c.
21,493. G. J. Dallison. Variable speed gear.
22,399. F. Pountney and Rudge-Whitworth. Poppet valves.
23,259. G. J. Dallison. Exhaust silencers.
24,388. G. Webb. Wheels.
26,047. Akt. Wigelius Moterer. I.C. engines.

Applied for in 1912.

Published August 1st, 1912.

793. G. Elliston and S. V. Fell. Variable-speed gear.
1,362. J. P. J. Da Costa. I.C. engines with rotary valves.
2,174. L. E. Viard. Two-stroke-cycle I.C. engine.
2,533. Soc. Francaise des Tissus Viaises, and E. Bourdin. Outer tyre covers.
2,864. Unterberg and Helmle. Magnetos.
3,545. G. Bouret. Rotary I.C. engine.
3,910. A. Sordi. Substitute for pneumatic tyres.
5,302. H. Zimmermann and R. Slaby. Sparking plugs.
5,304. G. A. Bishop. Steering shafts for motor cars.
6,398. L. Revault. Sparking plugs.
6,501 G. S. Adams and Eureka Resilient Tyre Manufacturing Co. Resilient tyres.
8,039. C. A. Vandervell and A. H. Midgley. Electric lighting of cars.
9,849. R. E. Rothe. Wind-screens.
11,024. W. H. Moore and Ambrose, Shardlow and Co. I.C. engines.

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The AUTO
-MOTOR JOURNAL.
The Motorist's Journal and Directory.

No. 605. (No. 32, Vol. XVII.)] AUGUST 10, 1912. [Weekly, Price 3d. Post Free, 3½d.



FISHGUARD AND ITS DANGEROUS APPROACH.—The formidable Dinas Hill leading to Fishguard is to be circumvented by the local authorities, and above we show by means of the dotted line the course which the new road will take round the end of the hill instead of the old road down the dangerous gradient which is seen in our photograph just below where the new road starts at the top.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Telegrams: "TRUDITUR," London.
Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

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Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

The Reckless Driving Problem.

It is a grave indictment of the inconsiderate and reckless driver that is printed in the *R.A.C. Journal* of the 2nd inst., which sets forth the case brought against this undesirable genus by Mr. Maybury, the county surveyor of Kent. It might possibly have been better had the Club decided to publish Mr. Maybury's letter in full, but the next best thing has been done in digesting it and passing on the warning he has conveyed to motorists at large and the road-hog in particular. As to the subject matter of his complaint, we need not refer to it in detail, because we are all familiar with the conduct and tactics affected by that black sheep of the motoring community, the road-hog to wit. What does concern us rather more is the warning that unless things improve the Kent authorities will have to seriously consider the advisability of instituting some new means of dealing with the trouble. We all know what that means. Kent has always been a county within whose borders the motorist was welcomed and only ordinarily decent conduct asked of him in return. Police traps and vexatious prosecutions for "common danger" have never been favoured; the Kentish roads have been justly famed as almost, if not quite, the best in England, and, in a word, Kent has hitherto been a sort of motorists' paradise. Now, we know Mr. Maybury too well not to realise that when he—a pioneer motorist and an excellent friend of the motorist and the movement—complains, there is good solid ground for the charge. That being conceded, the question becomes: What is to be done about it? It is fairly certain that to appeal to the type of driver who does all that in him lies to bring discredit upon the whole class is a mere waste of time and effort. He has been appealed to week by week and day by day for years, and it has made no difference at all. Indeed, his conduct seems to get worse, or else there is more of him on the roads. When the R.A.C. and the Kent A.C. combined a short while since to place inspectors on the roads to report cases of reckless and inconsiderate driving, we did not exactly express approval of the scheme as it was outlined. There seemed to be something repugnant to the sense of fair play in setting unofficial traps, as it were, taking the numbers of offending cars, and threatening the drivers, perhaps, days after the commission of an alleged offence, without a chance being given to secure rebutting evidence at the time. But we are coming round to the belief that this is likely to prove the lesser of two evils. On the one hand, there is the possibility of injustice in individual cases—though we had rather take our chances at the hands of the R.A.C.-Kent A.C. road inspectors than at those of the police—but on the other there is the absolute certainty that unless some drastic steps are taken to put the motorists' house in order from within, they will be taken from without. We should probably not write quite as strongly as we have done were the complaints confined to Kent. We have taken that county as an illustration of the case in point because the source of the indictment is one that carries conviction with it, but it is unfortunately the case that Kent is not at all singular. Complaints of recklessness and want of ordinary consideration are coming in with distressing frequency. In many cases they may not rest on any particularly good basis, but even allowing for that we fear that it cannot be doubted that the problem of the road-hog is becoming acute once more. It is acute enough, at any rate, to afford serious food for thought on the part of the great motoring organisations. To speak quite plainly, it seems to us that at least a *prima facie* case exists for them to consider whether they will not shortly be compelled to co-operate in the extension of the joint R.A.C.

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and Kent Club scheme for running to earth and ruthlessly prosecuting the sort of driver who is the subject of complaint.

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The Holidays and the Weather. The motorist who spent his holiday on the open road last week-end was confronted with worse weather conditions than the records of the past fifty years have shown. Rain, cold, and driving gales were the principal characteristics of the Bank Holiday week-end, and there was more solid comfort to be had by the home fire-side than in pursuit of any open air pleasures. But the motorist comes of hardy stock, and despite the inclement conditions there seemed to be even more cars than usual on the main roads. Literally, everyone seems to travel by car nowadays; so much so, indeed, that it is little wonder the railways complain that the coming of the motor car has worked a great deal of harm to the first-class traffic. It is simply a case of the survival of the fittest. The modern car is fully the equal of the railway train so far as reliability is concerned, and except in the case of the very long distance journeys it is nearly as fast—in point of fact, indeed, when it is a question of time from door to door, the car probably scores even in the matter of speed, while as to the relative convenience of the two methods of travel the balance is all in favour of the car. Taking that as the correct point of view, there is little to wonder at in the rapidly increasing vogue of the car. A point that seems to emphasise this is the undoubted decrease in what may be called motoring for pure pleasure. By that we mean the sort of motoring which was indulged in in the earlier days of the movement, when the car was used simply and solely to minister to the pleasure of its owner, and with very little more object in view than what was euphemistically called "a run in the car"—a run which too often ended in a crawl, even if it did not eventuate into an absolute breakdown by the wayside. All that is altered nowadays, and there is very little of this aimless motoring done. Probably ninety-five in a hundred of the cars we met so thickly on the roads during the week-end were bound on some definite mission, and were being used in preference to the less convenient railway transport. Motoring, in a word, has arrived at utilitarian stage—the stage which means solidly established vogue, with indefinite scope for future expansion along the right lines. It may be that we are but setting down the obvious in saying this, but even impressions of the obvious are sometimes worth recording, if only because it is often the things which are most apparent that are often missed.

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The Kingston Bench and Motor Speed. Mr. W. Y. Cockburn, the chairman of the notorious Kingston Bench, seems to have been, like Brer Rabbit, lying low and sayin' nuffin for a considerable time. At least, we have not read any of his illuminating dicta on the motor car for some months. It may possibly be, of course, that the local Press has neglected him, and allowed all his brilliant sayings to pass unchronicled, but whatever the cause he certainly has not been doing himself justice lately. However, he seems to have started in to make up some of the lost time, for we notice that he has been lecturing the police about the dangerous speed of cars in Eden Street, within the sacred precincts of the borough of Kingston. According to Mr. Cockburn, Eden Street belies its name, for he drew a moving picture of how he stood waiting for a tramcar—or perhaps he only stood watching the people who were waiting, for we should imagine he would hardly imperil his neck by riding in any sort of mechanically-propelled vehicle—when up came a motor car at a fearsome speed, which he estimated at thirty miles an hour, scattering the people like a flock of sheep, and, he added impressively, "It is a wonder that some of them were not killed." Now, we have often placed it on record that we have no sympathy with the reckless driver, nor, by the same token, have we any more with the maker of reckless statements. We dare wager that no car has driven through Eden Street at 30 miles an hour within living memory, unless possibly during the small hours of the morning when there was no soul about save the sleepy constable on the beat. We wonder what sort of prize this eminent judicial authority would win at a speed-judging competition! If only he could be induced to try his hand at it, he might achieve some results which would astonish him.

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The Abuse of the Hooter. In *The Times* of the 30th ult. there is published a lengthy letter from a correspondent relating to the abuse of the hooter, and traversing the circular warning of the Commissioner of Police. Notably it is pointed out that the circular practically commences by saying "it is incumbent on all drivers to give audible warning," and that "audible warning is especially required at corners and at points where streets cross each other, so that vehicles approaching the junction may be apprised of each other's advent." At first sight it would certainly seem that the circular would have the primary effect of impressing upon drivers the necessity of doing exactly what it was designed to teach them not to do, but it must be remembered that the Commissioner is literally between the devil and the deep sea. On the one hand, he has to do the best he can to mitigate an undoubted nuisance, but on the other he is faced with an Act of Parliament which expressly enjoins upon the motor car driver that he shall commit that very nuisance! The Act says that in all cases of necessity the driver of a motor vehicle shall give audible warning of his approach, the estimation of necessity being left to that driver. Furthermore, it is notorious that in case of accident almost the first question asked is: "Did you blow your horn?" Answered in the affirmative, it is taken as *prima facie* evidence that the driver did all possible to avert the untoward occurrence. Answered in the negative, it is seized upon as a great point against him. The Commissioner of Police cannot override an Act of Parliament and in issuing his warning circular it seems to

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us that he did right in calling attention to the law as it stands lest it should be understood that his warning was to stand in place of that law. Obviously he had to put himself right on this essential point.

The Times correspondent avers that the circular was not properly distributed among the drivers. We are content to take this statement as being one of fact, but seeing that he alleges it to be rather worse than useless it is difficult to see wherein the harm lies. Returning to the charge against the phraseology of the circular, he says that what was wanted was a short, crisp, precisely-worded caution, sent to every licensed driver, calling upon him to restrict the sounding of his motor-horn to occasions of actual necessity. That is all very well in the abstract, but for the reasons we have given above, we rather prefer the circular as it stands. Admitting—as we freely do—that there is far too much hooting indulged in in the London streets, it seems to us that the law is as much to blame as the offenders, or rather the stress that is laid upon compliance with it in case of accident. So long as the authorities apportion the blame for accident according to whether or not the horn was sounded, there must of necessity be a great deal of what we may call defensive hooting done.

There is one statement made in the letter we are discussing to which we really must take exception. It is this :—

"The men themselves admit that there is a very great deal more hooting than there would be if it were not for the Act of Parliament and for the high speed permitted. In their own words, 'most of the hooting is unnecessary; what is wanted is that speed should be lessened to avoid accidents.'"

We simply cannot understand the proposition as it is put. Who are "the men"? We presume that the taxi-drivers are meant, but we confess that their alleged opinions are, to say the least, peculiar. The part which refers to the Act of Parliament we can follow, for it is precisely that which we have been arguing, but when "the men" say that "what is wanted is that speed should be reduced to avoid accidents," we simply cannot follow. Surely, if these somewhat nebulous "men" are of this opinion, it lies with them to reduce speed—there is no need for them to wait for legislation compelling them to travel at a lesser speed than they do at present. But we suspect that the opinions quoted from *The Times* letter have been obtained through the medium of leading questions, and it is notorious that the average individual can be so handled as to be made to say exactly what he thinks his interlocutor would like to hear.

We would not have it understood that we are otherwise than in opposition to the abuse of the hooter. In fact, we should not be at all averse to seeing its use prohibited altogether during certain hours of the night in London and its use very much restricted by day. London would be a more tolerable place in which to live were this happy consummation brought about.

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How they do it in Germany.

THE education of police-court magistrates with regard to motoring matters is a Utopian state of affairs, but to which Berlin has actually attained. During several days last month a large number of magistrates and "staatsanwalte" (public prosecutors, who form a separate branch of the German Bar) went for motor runs through the streets of Berlin and its suburbs to enable them to understand traffic conditions better and the questions involved in litigation in connection therewith. The suggestion emanated from the Chief Magistrate of the city, while the cars employed were placed at the disposal of these gentlemen by members of the Imperial and Berlin Automobile Clubs.

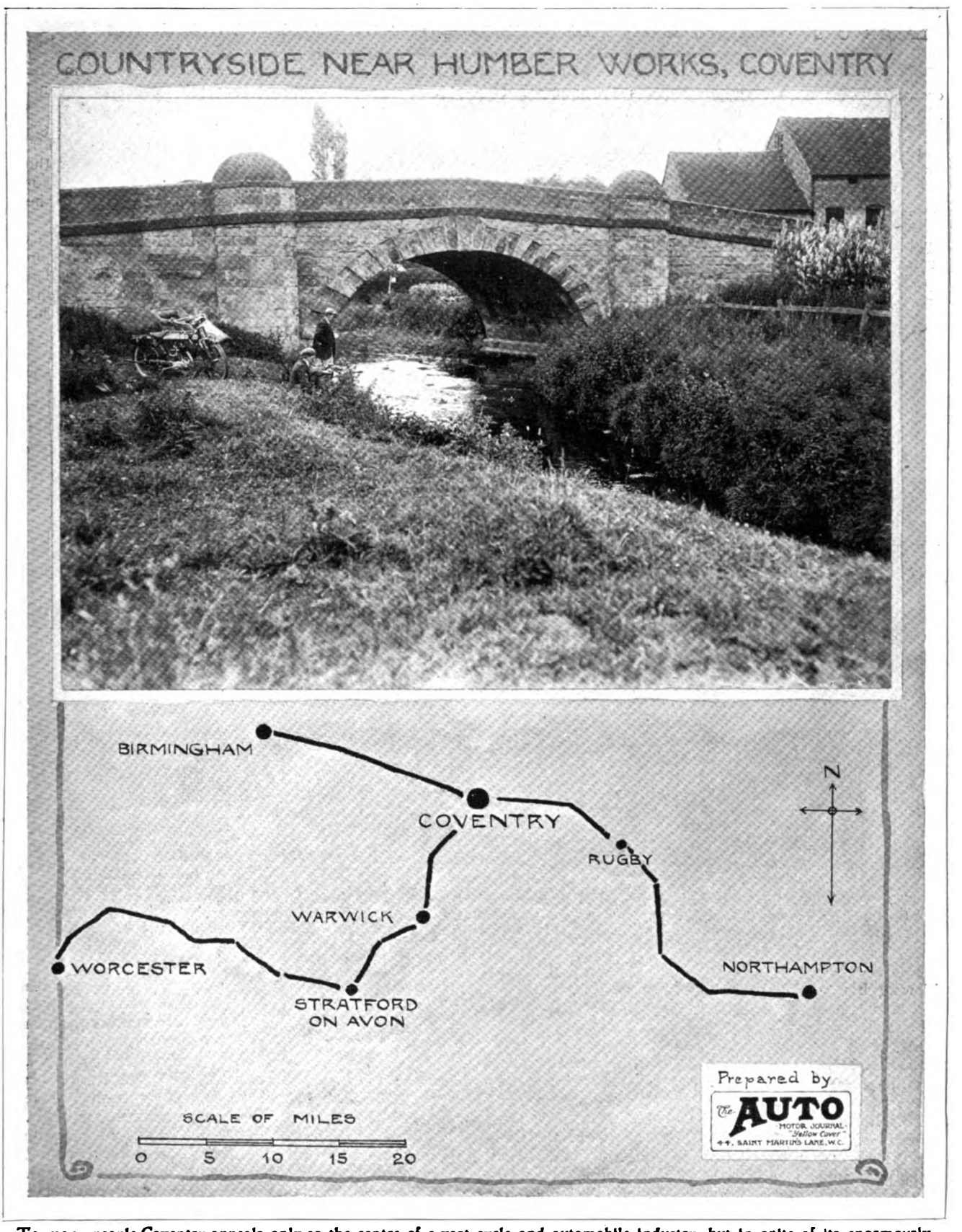
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The L.C.C. and Speed Limits.

Truly the L.C.C. is an extraordinary body! At its last meeting it had before it the report of its Public Control Committee regarding the question of speed limits for motor vehicles. It appeared from this report that it has been an instruction of the Council to apply for certain speed limits in the West End, and the Committee reported that these applications had been duly made to the Local Government Board, but in view of the Board's refusal to grant similar applications in other cases, and in view also of the refusal of the Commissioner of Police and the Westminster City Council to support the applications, the Committee recommended that they should be withdrawn. But up rose Mr. W. C. Johnson to move that the recommendation should be referred back for reconsideration. He urged that in spite of the attitude of the Local Government Board, and in spite of the opposition of the police authorities, the Council should stick to its principles and persevere with its applications. Lord Haddo having seconded this resolution, the Council decided by a bare majority in favour of the reference back. This, we take it, means that public money and much valuable time, both that of officials and private individuals who are compelled to attend these futile enquiries, will be wasted in the pursuit of what the Council is pleased to term a principle. For ourselves, we cannot for the life of us see exactly what principle is involved, unless it is the one that the Council is, in its own sight, like the Pope, infallible. At the inquiries which have been held as a consequence of the Council's applications, all the real evidence adduced has been to the effect that the granting of the restrictions asked for would not have any effect upon the measure of safety of the traffic. The police have pointed out their futility from the standpoint of those upon whom the regulation of the street traffic falls. Statistics have been produced showing that in ninety per cent. of the accident cases involving motor vehicles, the speed has been actually well within the limit asked for by the Council. So conclusive has the evidence been that the Local Government Board has incontinently refused to approve of the proposed limits and from its attitude it is sufficiently obvious that future applications of the kind are foredoomed to failure. A business body would exploit another line and save its time and money, but the L.C.C., having the ratepayers' purse to dip into, may be trusted to run a principle to death. It would be humorous if it were not that year by year the county rate tends upwards as the sparks fly.

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With the Camera and the Car.



To many people Coventry appeals only as the centre of a vast cycle and automobile industry, but in spite of its enormously rapid growth it still retains on its outskirts many beautiful characteristic bits of Warwickshire scenery. Above is a typical example, a scene on Whitley Common, within half a mile of the enormous Humber Works.

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BANK HOLIDAY MEETING AT BROOKLANDS.

LARGE CROWD ENJOYS A FINE DAY'S RACING, EXCELLENT SPORT, MANY THRILLING INCIDENTS AND A DEAD HEAT.

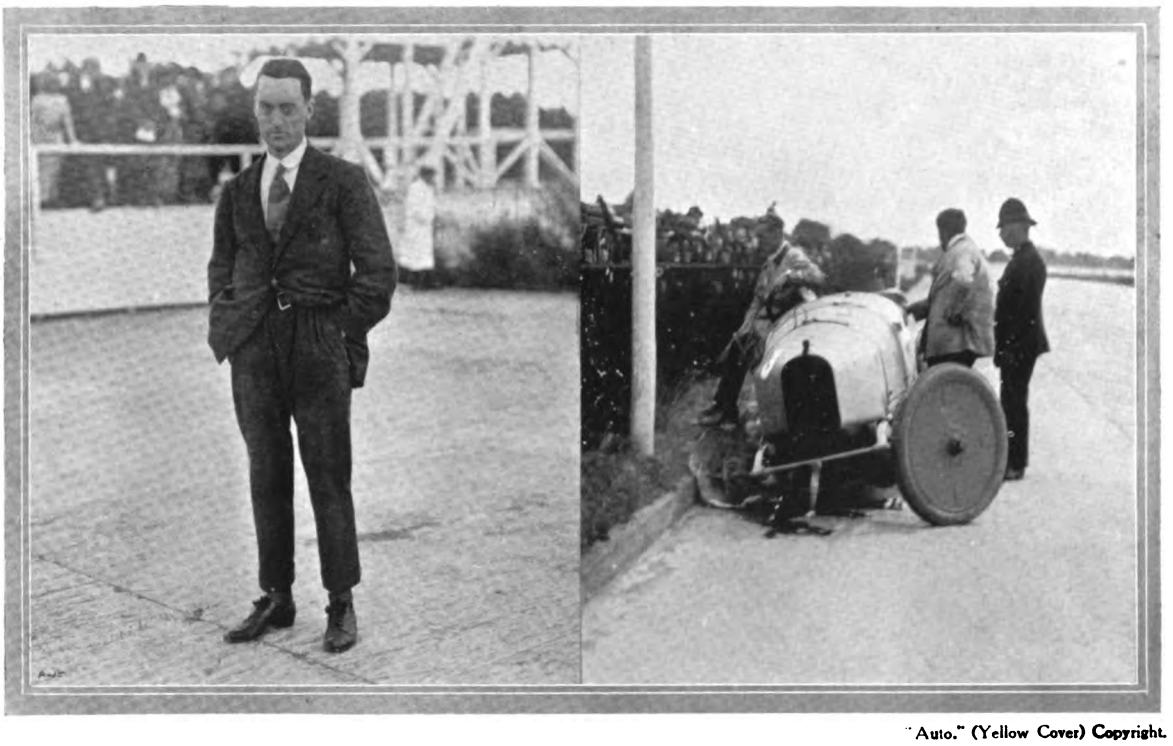
AUGUST BANK HOLIDAY usually produces the largest crowds of spectators at the Brooklands Track, and last Monday was no exception to this rule. Although the clerk of the weather was a long time making up his mind as to whether it should be fine or not, and although the first race was timed to start at 12 noon, there was quite a good crowd present when the competitors for the first race, the Zebra Car Race, went to the post. During the following half hour many more thousands arrived, so that by the time the second race was started, a very large crowd was present. Just at noon Jupiter Pluvius made up his mind to retire for the day, and after a short but heavy shower at midday the sun reigned supreme all through the afternoon. The high wind that had been blowing, however, did not subside, so that the last item of the long programme, the Aeroplane Handicap, had to be abandoned.

All the races were well filled, keenly contested and produced highly exciting and close finishes, the outstanding feature of which was a dead heat for second place in the 100 m.p.h. Long Handicap between Mr. N. S. Hind's 35·7 Berliet and Mr. G. W. Brown on Mr. Gordon Watney's 48·6 Mercedes, who crossed the line dead level only a bare length behind Mr. C. A. Bird's 15·9 Sunbeam. The dead heat was run off immediately and resulted in an easy win for Mr. Hind's Berliet by 10⅕ secs.

One car was fortunate in scoring a double victory, viz., Mr. W. Turner Smith's 13·9-h.p. Stoewer, this winning the Three-Litre Race at an average speed of 60¼ m.p.h., and, although penalised 15 secs. for this victory, also came home first in the 70 m.p.h. Long Handicap. In connection with the speed of this car in the Three-Litre Race, it is worthy of note that only a few days previously Mr. Turner Smith on the same car beat the record for the Brooklands Cubic Capacity, "A" class; his best speed for the flying kilometre then was 58·6 m.p.h. while he averaged 60¼ m.p.h. in the Three-Litre Race.

Another competitor, Mr. McL. N. Staight on his 15·9 S.C.A.R., scored a first, a second and a third. He won the August Private Competitors' Handicap, ran second in the Three-Litre Race and came in third in the last event, the Winners' Handicap. This triple success at this meeting brings him very near the top of the list in the "Points Cup" for private competitors with 132 points, where up till then he had occupied the lowest position with only 60 points.

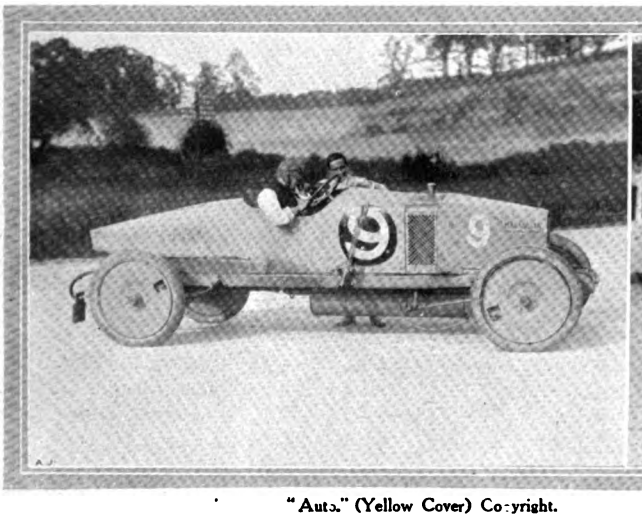
Some very fine racing was seen in the 100 m.p.h. Short Handicap in which Mr. L. Coatalen steered his 30·1-h.p. 6-cylinder Sunbeam to victory at an average speed of 82½ m.p.h. From the 32 seconds mark Mr. Coatalen quickly caught up the field and by taking the Byfleet banking high up overtook all his competitors and crossed the line seventy yards in front of Mr. N. S. Hind's 35·7 Berliet. Messrs. Percy Lambert on the Austin "Pearley III," G. W. Brown on Mr. Gordon Watney's Mercedes and Mr. M. Campbell on his Darracq "Blue-Bird," provided a magnificent spectacle



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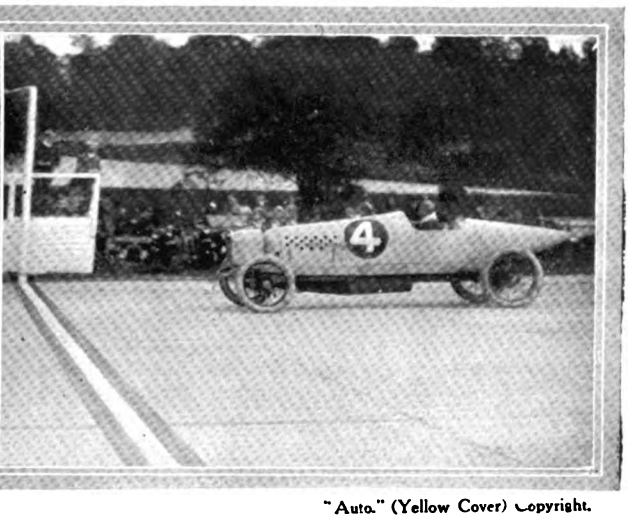
Mr. M. Campbell, who by extremely skilful driving and steady nerve, steered his 59·6-h.p. Darracq for about 600 yards with two wheels smashed during one of the racing events at Brooklands on Bank Holiday. On the right, Mr. Campbell is seen at the instant of stepping from the damaged car after he had brought it to a standstill by the side of the track.

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Mr. McL. N. Staight, winner of the August Private Competitors' Handicap, on his 15·9-h.p. S.C.A.R. ("Maraquita") last Monday.



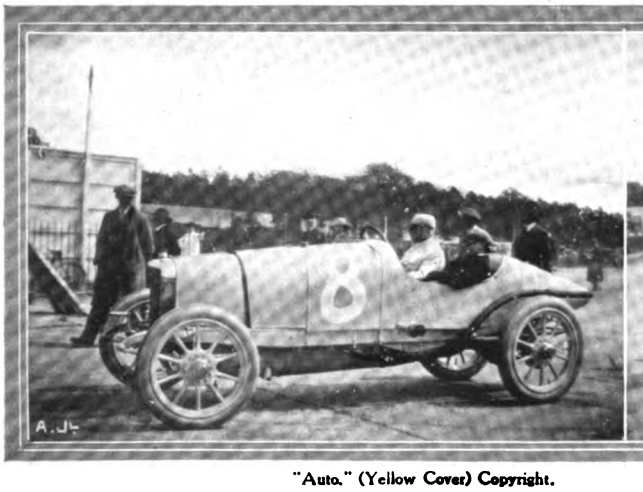
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Mr. L. Coatalen winning the 100 m.p.h. Short Handicap on his 30·1-h.p. 6-cyl. Sunbeam at Brooklands, Bank Holiday.

in this race by racing neck and neck for the best part of the second lap. But not only from a sporting point of view was this one of the most interesting races of the day, but from a merely spectacular one it ranked amongst the most exciting races ever witnessed on the track, and easily beats the record which in this direction was held by the 90-h.p. race on Easter Monday, 1908, when D. Resta on a Mercedes and F. Newton on the Napier collided when travelling at over 100 m.p.h. without serious consequences.

Fortunately, beyond a smashed car, no damage was done and no one was injured in the mishap that happened to Mr. M. Campbell's 59·6 Darracq, and this happy ending—notwithstanding statements to the contrary—is solely due to Mr. Campbell's steady nerve and presence of mind. When turning into the finishing straight at the fork, the off-side front tyre burst and made the car swerve to the right so much that it left the track with its two off-side wheels. The violent bump on to the grass broke the spokes of the off-front wheel at the hub, but with a superhuman effort Mr. Campbell managed to bring the car, which at the time was travelling well over 100 m.p.h. back to the cement. The bump from the grass to the track, however, smashed the remaining off-side rear wheel, and we had the spectacle of a car careering down the finishing straight on only two wheels at very little short of 100 m.p.h. But Mr. Campbell proved himself master of the situation. He maintained perfect control and not only steered the car out of the way of the other competitors to the off side of the straight, but also prevented it from dashing into the railings of the popular enclosure, where it would have played havoc amongst the thousands of spectators who were lining the rails ten deep, and brought it to a stop just opposite the press stand. Spontaneous and long sustained applause rewarded Mr. Campbell for this masterly piece of driving, which easily made him the hero of the afternoon. Much shaken but none the worse for their experience Mr. Campbell and his mechanic climbed out of the wreck of what only a few seconds previous was one of the finest racing cars ever seen at Brooklands.

Just as this car had stopped, Mr. Lascelles' Mercedes,



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Mr. C. A. Bird, on his 15·9-h.p. Sunbeam, in which he made some fine running in different events at Brooklands on Monday and won the Eighth 100 m.p.h. Long Handicap.



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Mr. H. Turner Smith, on the 13·9-h.p. Stoewer, is satisfied with his splendid win in the Brooklands 3-Litre Handicap on Bank Holiday. On the same car, Mr. Turner Smith also secured the 70 m.p.h. Long Handicap.

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owing to the sudden application of the brake skidded violently at the end of the finishing straight and turned completely round, thus causing a few anxious moments to Mr. "Pearley" Lambert on his Austin, who followed close up but managed to steer clear of the skidding Mercedes.

A more serious accident happened in the Short Motor Cycle Race, in which Mr. C. Townsend on a twin-cylinder Zenith, just after passing under the Members' Bridge, had a bad spill through the bursting of his front tyre. Dr. Paul was soon on the spot, and although badly cut about the head and face, Mr. Townsend was suffering from nothing worse than a slight concussion; no bones were broken. He was conveyed to the hospital on the track and is getting on satisfactorily. A truly sporting spirit was shown by two competitors in this race who stopped and stood by the injured man until the arrival of the doctor.

In the 70 m.p.h. Long Handicap Mr. Hornsted on the 13·9 Mass, had a narrow escape from colliding with Mr. W. G. Tuck on the Humber. The engine of the latter suddenly seized up causing the car to swerve and to stop abruptly. Mr. Hornsted on the Mass was following close up and only avoided running into the Humber by violently swerving around it; in executing this manœuvre he ran off the track, bent both his axles and tore out some of the shrubs, some of which he carried right round the track on his starting handle and inside both off-side wheels. In spite of this he managed to run into fourth place.

There was also the spectacle of a car bursting into flames just before reaching the finishing line. In the 100 m.p.h. Long Handicap the carburettor of Mr. H. F. W. Farquharson's 15·9 Sunbeam caught fire, but the flames were soon put out by the track attendants.

In the Sprint Race it was curious to watch the redoubtable Mr. Hornsted, whom we have so often seen starting from scratch in this race, starting as the limit man on his 13·9 Mass, which he had brought to the start in spite of its bent axles. The big Benz under its new owner, Mr. Eric Horniman, did not do itself justice; it seemed to miss Mr. Hornsted's master hand and was misfiring badly all through the afternoon. Mr. Horniman must have spent a small fortune in sparking plugs alone.

In the 70 m.p.h. Short Handicap we saw Mr. A. E. George, of Four-Inch-Race Fame, at the wheel of a Ford car, which he drove well. He would have won the race had it not been for the fact that a heavy piece of metal that he carried as ballast over the rear axle came adrift and damaged some of the spokes of the off-side back wheel; thus he lost the race to Mr. K. Yano, a Japanese sportsman, on a 25·8 Bedford car.

Finally there was the Winners' Handicap, which was a gift to Mr. F. H. Arnott on a 3½-h.p. Rudge. However, he threw it away by doing a lap too many and losing the race to Mr. G. W Hands' 15·9 Calthorpe.

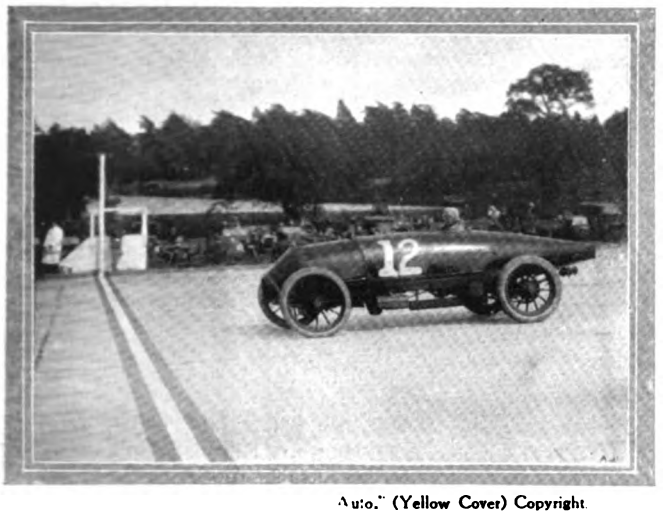
This concluded the most exciting afternoon's racing that has ever been witnessed on the track. Thanks are due to the track management for their punctuality and their promptness in emergencies and also to the handicappers who seemed to have "found their level" and were able to produce such a magnificent and exciting finish to every race.



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Finish of the Second Ford Car Race, as seen from the Pavilion, the first place being taken by Mr. K. Yano.

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Mr. N. S. Hind, on his 35·7-h.p. Berliet, winning the "run off" for second place in the Eighth 100 m.p.h. Long Handicap at Brooklands, Bank Holiday.

RESULTS.

The Zebra Car Race. 2 miles.

The entrant of the winner to receive a cup, value £15, presented by Messrs. F. B. Goodchild and Co., Ltd. ; the entrant of the second a cup, value £7 10s. ; and the entrant of the third a cup, value £5.

For single-cylinder Zebra cars—88 mm. bore, 106 mm. stroke—fitted with standard torpedo bodies as supplied by Messrs. F. B. Goodchild and Co., Ltd., but without hood and screen. Mudguards and running boards to be carried.

1. C. R. Nash-Wortham. 2. U. Kreitmeyer. 3. M. McKenzie.

Also ran: S. H. Lambert, C. M. Durkin, C. C. Smallwood, F. C. Cottrell, S. K. Broadfoot, G. M. Eden. Winner's speed, 33½ m.p.h.

The Brooklands Three-Litre Handicap. 8½ miles.

The entrant of the winner to receive 100 sovs., or cup at option ; the entrant of the second 25 sovs., or cup at option ; and the entrant of the third 10 sovs., or cup at option. For cars with engines of 3,000 cc. or less.

Place.	Driver and Car.	Cylinder. Bore and Stroke. mm.	Capacity. cc.	Start. m. s.
1.	W. Turner Smith (13·9-h.p. Stoewer)	75 × 89	1,573	2 21
2.	McL. N. Staight (15·9-h.p. S.C.A.R.)	80 × 140	2,815	1 18
3.	W. R. McBain (15·9-h.p. Delage) ...	80 × 149	2,996	1 33

Also ran: L. G. Hornsted (13·9-h.p. Mass), 75 × 140 mm., 2,474 cc., 1 m. 33 s. ; H. F. W. Farquharson (15·9-h.p. Sunbeam), 80 × 149 mm., 2,996 cc., 36 s. ; Percy Lambert (19·2-h.p. Austin, "Pearley III"), 88 × 115 mm., 2,798 cc., 9 s. ; S. G. Cummings (13·9-h.p. Crespelle "Sel-Rud"), 75 × 150 mm., 2,651 cc., 2 m. ; G. W. Hands (15·9-h.p. Sunbeam), 79½ × 150 mm., 2,978 cc., 27 s.

Turner Smith on the Stoewer made a fine start and was never caught. He finished 200 yards ahead of Staight ; 150 yards between second and third. Winner's speed, 60¼ m.p.h.

The Eleventh Short Motor Cycle Handicap. 5¾ miles.

The entrant of the winner to receive £10, or cup at option ; the entrant of the second £5, or cup at option ; and the entrant of the third £3, or cup at option. For all classes of motor bicycles.

Place.	Rider and machine.	mm.	cc.	m. s.
1.	W. H. Else (Rudge)	85 × 88	499	0 46
2.	P. Newbold (Zenith*)	76 × 85	771	0 32
3.	Archibald Brunton (Bat*).. ...	85 × 65	738	0 32
4.	R. Croucher (Kerry Abingdon) ...	85 × 88	499	1 10

* Twin-cylinder.

Twenty-one started. 20 yards between first and second ; same distance between second and third. Winner's speed 62½ m.p.h. Townsend, on Zenith, burst front tyre ; fell and cut himself badly about the head and face.

The Seventh 70 m.p.h. Long Handicap. 8½ miles.

The entrant of the winner to receive 30 sovs., or cup at option ; the entrant of the second 15 sovs., or cup at option ; and the entrant of the third 10 sovs., or cup at option.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	W. Turner Smith (13·9-h.p. Stoewer)	75 × 89	1,573	1 3
2.	Lord Exmouth (15·9-h.p. Hispano-Suiza)	80 × 180	3,619	scratch
3.	S. G. Cummings (13·9-h.p. Crespelle "Sel-Rud")...	75 × 150	2,651	0 57

Also ran: T. B. André (8·9-h.p. Marlborough), 60 × 100 mm., 1,131 cc., 3 m. 45 s. ; L. G. Hornsted (13·9-h.p. Mass), 75 × 140 mm., 2,474 cc., 30 s. ; H. E. S. Huth (22·4-h.p. Ford), 95 × 102 mm., 2,892 cc., 57 s. ; A. H. Barton (19 2-h.p. Adams), 88 × 120 mm., 2,920 cc., 57 s. ; Neville Hardy (17·9-h.p. Vauxhall), 85 × 102 mm , 2,315 cc., 47s.

Again the Stoewer ran away from the field and finished 50 yards in front of Lord Exmouth, who drove a fine race on his Hispano ; 40 yards between second and third. Winner's speed 58¼ m.p.h. R. Lisle's 15·9 Star stripped its bevel pinion at the start. Hornsted on Mass only avoided smashing into Tuck's Humber by turning off the track, but finished fifth.

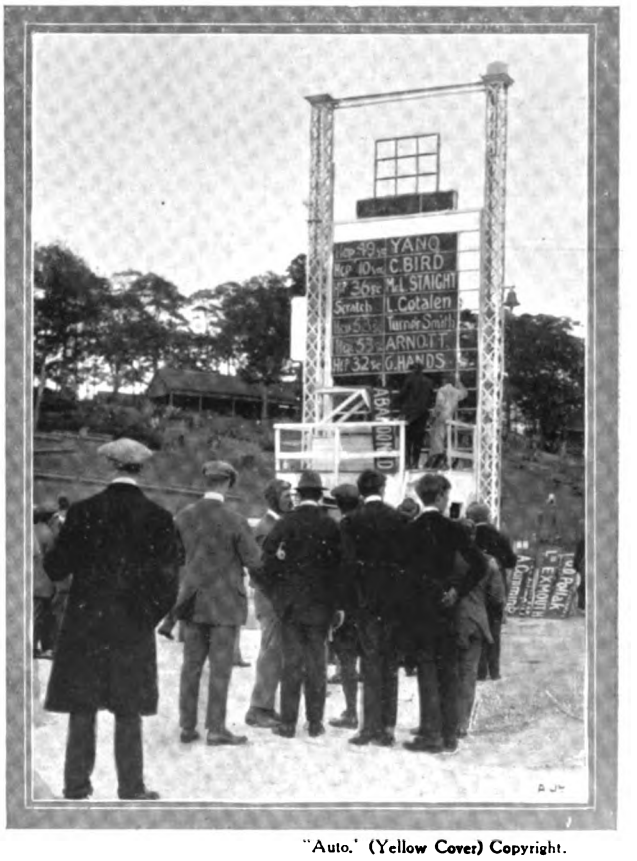
The Eighth 100 m.p.h Short Handicap. 5¾ miles.

The entrant of the winner to receive a cup, value £50, presented by H. Aron, Esq. ; the entrant of the second a cup, value £15 ; and the entrant of the third a cup, value £7 10s.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	L. Coatalen (30·1-h.p. Sunbeam) ...	90 × 160	6,107	0 32
2.	N. S. Hind (35·7-h.p. Berliet) ...	120 × 140	6,334	1 16
3.	G. W. Brown (48·6-h.p. Mercedes) ...	140 × 150	9,237	0 36

Also ran: Eric Horniman (59·6-h.p. Benz), 155 × 200 mm., 15,095 cc., scratch ; M. Campbell (59·6-h.p. Darracq), 155 × 140 mm., 10,567 cc., 20 s. ; H. L. Lascelles (76-h.p. Mercedes), 175 × 155 mm., 14,913 cc., 14 s. ; Percy Lambert (19·2-h.p. Austin "Pearley III"), 88 × 115 mm., 2,798 cc., 44 s. ; C. L. E. Geach (15·9-h.p. Singer), 80 × 130 mm., 2,614 cc., 38 s. ; S. F. B. Lacon (15·9-h.p. Gregoire), 80 × 149 mm., 2,996 cc., 1 m. 16 s. ; C. A. Bird (15·9-h.p. Sunbeam), 80 149 mm., 2,996 cc., 38 s.

This was the race of the day. In the second lap, near the aeroplane sheds, the field closed up, and a fierce tussle for the lead began. Coatalen travelled high up on the bank, and forged ahead, winning by 70 yards. The Mercedes was a very good third. Winner's speed, 82½ m.p.h.



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BANK HOLIDAY MEET AT BROOKLANDS.—Posting the handicaps for the starters in the Winners' Race.

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The Eighth 70 m.p.h. Short Handicap. 3 miles.

The entrant of the winner to receive a cup, value £25; the entrant of the second a cup, value £12 10s.; and the entrant of the third a cup, value £5.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	K. Yano (25·8-h.p. Bedford) ...	4 in. × 4 in.	3,295	0 19
2.	A. E. George (22·4-h.p. Ford) ...	95 × 102	2,892	0 9
3.	Lord Exmouth (15·9-h.p. Hispano-Suiza)	80 × 180	3,619	scratch

Also ran: S. G. Cummings (13·9-h.p. Crespelle) 75 × 150 mm., 2,651 cc., 19 s.; A. H. Barton (19·2-h.p. Adams), 88 × 120 mm., 2,920 cc., 19 s.; R. Knights (10·4-h.p. Mathis), 65 × 100 mm., 1,327 cc., 40 s.; C. A. G. O'Malley (11·5-h.p. M.A.F.), 68 × 90 mm., 1,307 cc., 1 m.; Neville Hardy (17·9-h.p. Vauxhall), 85 × 102 mm., 2,315 cc., 9 s.; Henry Wing (13·6-h.p. F. N.), 74 × 90 mm., 1,548 cc., 26 s.

A very close finish after a splendid race. George on the Ford was leading towards the end, but damaged his back wheel. Yano won by barely a length, a length and a half between second and third. Winner's speed, 58½ m.p.h.

The Eighth 100 m.p.h. Long Handicap. 8½ miles.

The entrant of the winner to receive £40, or cup at option; the entrant of the second £25, or cup at option; and the entrant of the third £15, or cup at option.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	L. A. Bird (15·9-h.p. Sunbeam) ...	80 × 149	2,996	0 57
2.	N. S. Hind 35·7-h.p. Berliet) ...	120 × 140	6,334	1 54
	G. W. Brown (48·6-h.p. Mercedes)	140 × 150	9,237	0 54
4.	L. Coatalen (30·1-h.p. Sunbeam) ...	90 × 160	6,107	0 48

Also ran: H. F. W. Farquharson (15·9-h.p. Sunbeam), 80 × 149 mm., 2,996 cc., 1 m. 33 s.; Percy Lambert (19·2-h.p. Austin Pearley III), 88 × 115 mm., 2,798 cc., 1 m. 6 s.; Eric Horniman (59·6-h.p. Benz), 155 × 200 mm., 15,095 cc., scratch; C. L. E. Gearch (15·9-h.p. Singer), 80 × 130 mm., 2,614 cc., 57 s.

The most exciting finish of the day. Winner was leading by only half a length. There was a dead heat for second place, and the fourth was only 15 yards behind. Farquharson's Sunbeam caught fire just at the finish. Winner's speed, 81¾ m.p.h.

Running off dead heat for second place:

1. N. S. Hind (35·7-h.p. Berliet).
2. G. W. Brown (48·6-h.p. Mercedes).

Won by 10⅛ secs.

The Ninth Long Motor Cycle Race (a Handicap). 8½ miles.

The entrant of the winner to receive 10 sovs., or cup at option; the entrant of the second 5 sovs., or cup at option; and the entrant of the third 3 sovs., or cup at option. For all classes of motor bicycles.

Place.	Rider and machine.	mm.	cc.	m. s.
1.	F. H. Arnott (Rudge)...	85 × 88	499	1 27
2.	S. F. Garrett (Green Precision) ...	85 × 88	499	1 9
3.	G. E. Stanley (Singer)	69 × 80	294	1 27
4.	H. C. Mills (Green Precision) ...	85 × 88	499	1 9

Easy win for Arnott who was 300 yards ahead of Garrett, 150 yards behind Stanley came third, closely followed by Mills; the rest came in two bunches 400 yards apart. Winner's speed 62 m.p.h.

The August Private Competitors' Handicap. About 5⅝ miles.

The entrant of the winner to receive a cup, value £20; the entrant of the second a cup, value £12 10s.; and the entrant of the third a cup, value £7 10s.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	McL. N. Staight (15·9-h.p. S.C.A.R.)	80 × 140	2,875	1 30
2.	C. A. Bird (15·9-h.p. Sunbeam) ...	80 × 149	2,996	0 38
3.	S. F. B. Lacon (15·9-h.p. Gregoire) ...	80 × 149	2,996	1 16

Also ran: Lord Exmouth (15·9-h.p. Hispano), 80 × 180 mm., 3,619 cc., 1 m. 20 s.; O. D. Pollak (15·9 S.C.A.R.), 80 × 140 mm., 2,815 cc., 1 m. 30 s.; Eric Horniman (59·6 Benz), 155 × 200 mm., 15,095 cc., scratch.

Mr. Staight kept the lead right from the beginning, and won by 70 yards. Almost another dead heat for second place, Lacon only being inches behind Bird. A good fourth. Winner's speed 62 m.p.h.

The Second Ford Car Race. 2 miles.

The entrant of the winner to receive a cup, presented by Henry Ford, Esq., value £25; the entrant of the second a cup, value £7 10s.; and the entrant of the third a cup, value £5.

For 4-cyl. Ford cars, having a bore of 3¾ ins. and a stroke of 4 ins., furnished with model T-pattern chassis, the driving-wheels and the gear-ratios being of the standard pattern supplied by the Ford Co. for this type of car.

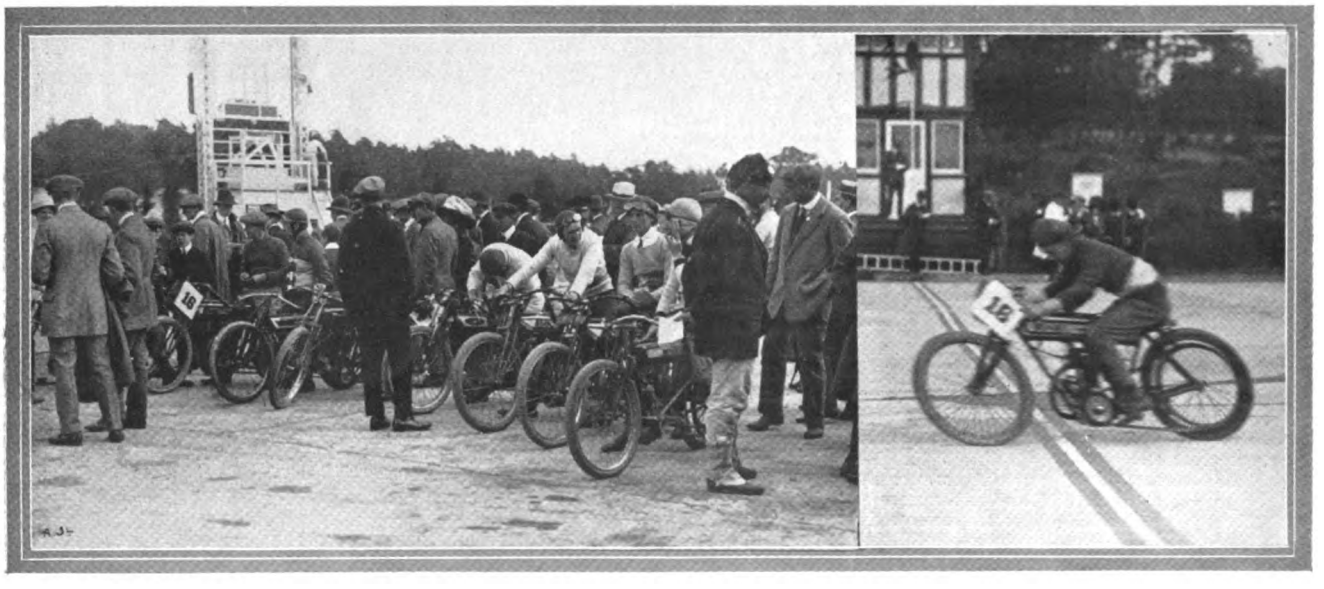
1. A. E. George. 2. F. Coulthard Bate. 3. H. A. Bate.

Also ran: F. E. Looker, A. H. Black, R. Winn, H. Alexander, F. W. Austin, all on 22·4-h.p. Fords.

George took the lead early, and won by 20 yards; 1½ lengths between second and third. Winner's speed, 56¾ m.p.h.

The August Sprint Race (a Handicap). 2 miles.

The entrant of the winner to receive a cup, value £30; the entrant of the second a cup, value £15; and the entrant of the third a cup, value £7 10s.



"Auto." (Yellow Cover) Copyright.

LINE UP FOR THE NINTH LONG MOTOR CYCLE HANDICAP AT BROOKLANDS BANK HOLIDAY MEETING.—In this, F. H. Arnott, on the 1-cyl. Rudge, was the winner, he being seen on the right actually crossing the winning line.

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Place.	Driver and Car.	mm.	cc.	m. s.
1.	F. Burgess (12-h.p. Calthorpe) ...	69½ × 125	1,896	0 34
2.	S. J. B. Lacon (15·9-h.p. Gregoire)...	80 × 149	2,996	0 28
3.	G. W. Brown (48·6-h.p. Mercedes)	140 × 150	9,237	0 14

Also ran: N. S. Hind (35·7-h.p. Berliet) 120 × 140 mm., 6,334 cc., 28 s.; Lord Exmouth (15·9-h.p. Hispano-Suiza) 80 × 180 mm., 3,619 cc., 30 s.; L. Coatalen (30·1-h.p. Sunbeam) 90 × 160 mm., 6,107 cc., 7 s.; L. G. Hornsted (13·9-h.p. Mass) 75 × 140 mm., 2,474 cc., 38 s.; O. D. Pollak (15·9-h.p. S.C.A.R.) 80 × 140 mm., 2,815 cc., 34 s. Burgess won easily by 50 yards, 20 yards between second and third. Winner's speed 64¼ m.p.h.

A Winners' Handicap.

The entrant of the winner to receive a cup, value £12 10s; if five or more run, the entrant of the second to receive a cup, value £7 10s. For winners of prizes in the day's handicap events.

Entries:—	Driver and Car.	secs.
	L. Coatalen (30·1-h.p. Sunbeam)	scratch
	C. A. Bird (15·9-h.p. Sunbeam)...	10
	G. W. Hands (12-h.p. Calthorpe)	32
	McL. N. Staight (15·9-h.p. S.C.A.R.)... ...	36
	K. Yano (25·8-h.p. Bedford)	49
	W. Turner Smith (13·9-h.p. Stoewer)	53
	F. H. Arnott (3½-h.p. Rudge)	53

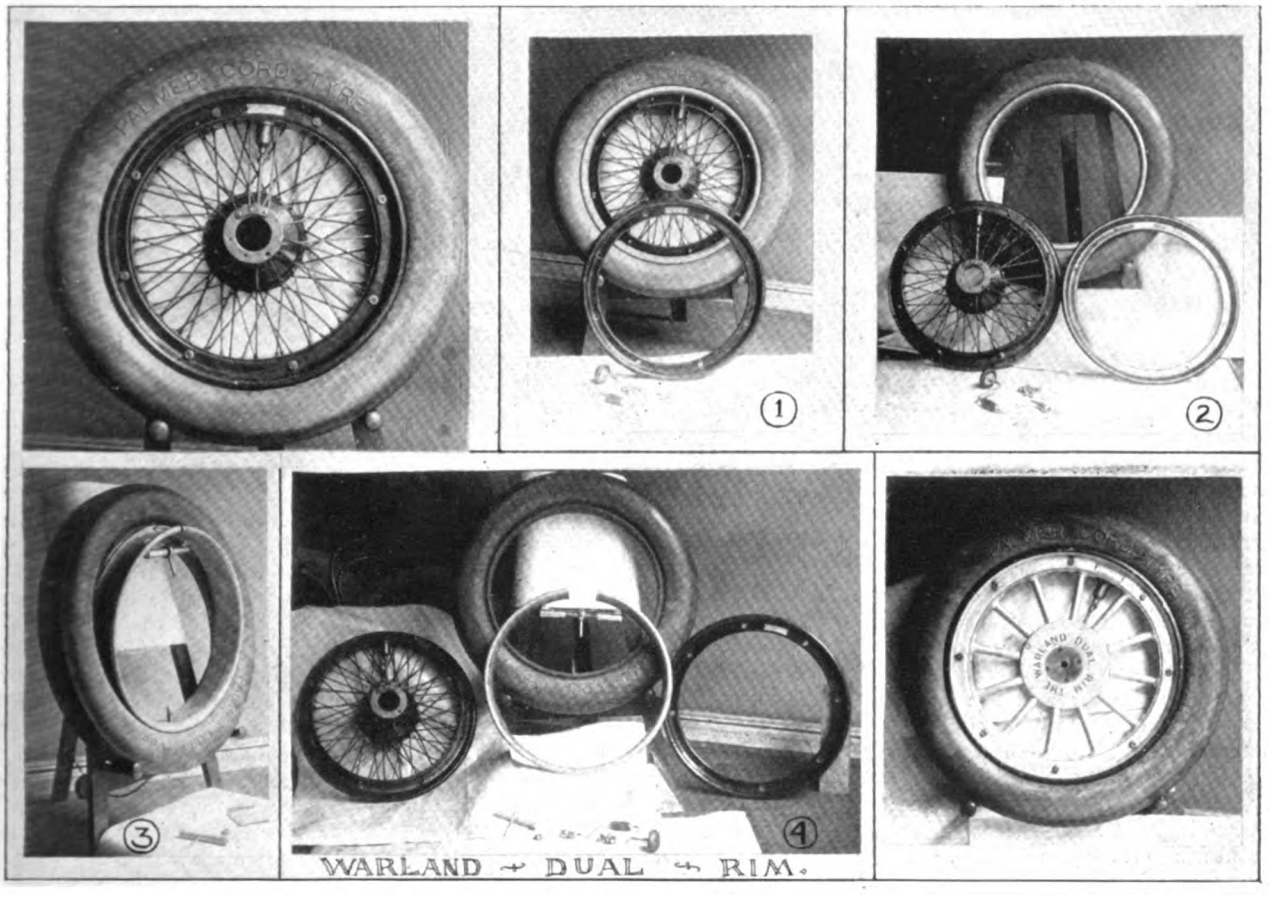
Result:—

1. G. W. Hands (12-h.p. Calthorpe).
2. K. Yano (25·8-h.p. Bedford).
3. McL. N. Staight (15·9-h.p. S.C.A.R.).

The race should have been won by Arnott on his Rudge; he simply ran away from the field, but forgot to turn into the finishing straight.

IMPROVEMENTS IN THE WARLAND DUAL RIM.

SINCE our issue of April 1st last year, several improvements and refinements have been carried out in the design of this well-known rim. The two most noticeable changes are in the method of securing the flange which holds the rim in place, and in the construction and mounting or fitting of the rim itself. Readers will remember that the rim at one time was so constructed that it resembled the external member of a cone-clutch, and was held in place on the inner felloe by four clips gripping the latter on the inside, and operated from the outside. Both the cone-clutch shape of the rim and the four clips for fastening have been abandoned, being replaced by a plain steel split rim, and, for fastening, by a solid steel flange that is held in place by eight bolts and nuts. On tightening up the nuts securing this flange, the latter is slightly sprung, so as to force it to fit tightly to the rim all round, and by this means a joint is secured that prevents water entering the hollow space between the outer rim and the inner felloe. As the operation of removing the tyre from the rim remains exactly the same as it was before, we would refer our readers to our issue of April 1st, 1911, for particulars. In conclusion, it may be as well to point out that the rim illustrated was mounted on a detachable wheel for two reasons: one, that many wheels have been so fitted, and, two, to show that it is quite a simple thing to fit these rims to wire wheels.



Photographs of the process of dismounting a Warland Rim and removing the tyre.—The numbered illustrations show different phases of the operation in order as they occur.

The Warland Dual Rim Co., which has its London showrooms at 101, Great Portland Street, make a point of demonstrating the ease with which a heavy tyre can be removed from their rim by the hand alone by using a 7-in. Palmer tyre for this purpose.

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SPRINGS.

A SIMPLE STUDY OF CAR SUSPENSION.

THE initial point of importance in the theory of car suspension is the fact that the spring has no fixed abutment, the road and the inertia of the car serving alternately in that capacity according as the wheel falls into a hole or is jerked upwards by an obstacle.

It is convenient to confine the study to one aspect of the case at a time, and the problem of the wheel striking an obstruction best serves the purpose of the following theory. But in order to analyse the situation more readily, consider for a moment the academic example of a heavy ball supported on the top of a light helical spring, which is being carried upright in the hand. By raising the hand *very slowly*, the ball may be lifted without further compressing the spring, alternately, by jerking the hand upwards *very quickly* the spring may be compressed without raising the ball. The ball rises inversely as the rate of ascent of the hand, that is to say, the *absorption* of the shock varies directly as the force of the blow.

It remains to express these general principles in quantitative figures that will define the shock absorbing power of a given spring. In this connection the problem is much simplified by the fundamental law that makes the natural period of any spring *solely* dependant on the amount that it has been deflected by the *permanent* load that it supports. Thus, any spring that "goes down" say 4 ins. under its normal load will vibrate 94 oscillations per minute whether it is a big spring or a little spring, and whether the load is a pound or a ton.

This natural periodicity of a spring is the same as the natural swing of a pendulum having a length equal to the normal deflection of the spring, the formula applicable to both cases being $T = \pi \sqrt{\frac{L}{g}}$.

T = time seconds for complete oscillation. L = length of pendulum or normal deflection of spring in feet.

The complete oscillation, for which the above formula gives the time, consists of four distinct phases. Consider for a moment that the spring of our example has been compressed by raising the hand and that the ball has been forcibly held stationary. When the ball is released, the spring will extend, shoot past its normal length, contract, and be re-compressed by the momentum of the ball. Assuming no loss of energy through friction, this process is repeated indefinitely: in any actual spring, the amplitude of the oscillations diminishes and the vibration is soon entirely damped out.

In motor car suspension, where the ball of our example represents the car and the hand is the road, the most important of the above phases is the first. Its time interval, which is one quarter of the full period given by the formula, indicates the natural rate at which the car will rise when the spring is compressed from *any* cause. Assuming that the spring is in good working order, free from friction between the leaves, this natural rate cannot be exceeded, and the condition for comfortable suspension should be satisfied by employing an initial deflection that will give a natural time interval of sufficient length to maintain a high rate between it and the time occupied by climbing the obstacle.

Obviously there is no theoretical value of the above ratio that will define the border line between comfort and discomfort; experience alone can indicate the numerical quantities that will give satisfactory results.

It has been common practice to speak only of the natural period of the spring when discussing the theoretical side of car suspension, but the above reasoning makes it clear that it is the *ratio* of the spring period and the force of the blow that it has to absorb, that is the really significant factor in a comfortably-suspended car. In previous notes this ratio has been referred to as the "softness factor" of a spring.

It follows, from the above, that the comfort of the suspension depends on the speed of the car, and that since high velocities reduce the time interval of surmounting an obstacle, stiff springs on a good car may have as high a "softness factor" as low-period springs on a slow car. The "comfort" of the suspension of the two machines may be equal, yet the springs may be characteristically different — which emphasises the important point of the argument, viz., that a spring is not stiff in the absolute, but only in relation to the work it has to perform. In a word, the driver is himself part of the suspension system, because, by suitably varying the speed to the character of the road, he can modify the softness factor.

Wheel diameter also influences the suspension, but not solely in the light of the above theory, which would tend to argue that a small wheel is more comfortable than a large wheel on the ground that it increases the force of the blow. The more important consideration in this case is the fact that the larger wheel tends to transform an obstacle into a "contour" and so to eliminate the shock altogether. Where the wheels are very large, as on hansom cabs, this influence is very noticeable, but within the narrow limits of car construction it is less obvious. The influence of diameter on the force of the blow points to the desirability of using lower period springs where larger wheels are employed.

All the foregoing considerations relate to the spring that moves freely and with relatively little friction. In practice, the leaf spring used on cars does not always fulfil these conditions. When at rest, the average leaf spring is unnaturally stiff because of the "stiction" between the leaves, and this is especially detrimental to easy riding on "good" roads owing to the fact that small obstacles give *disproportionately* small blows and, therefore, tend to reduce the "softness factor" of the suspension considerably below its normal value. It is, we believe, mainly in this connection that the auxiliary helical spring "shock damper" derives its chief claim to merit.

The auxiliary spring shock damper as fitted on most cars probably has a higher natural period than the main spring, and to that extent its softness factor is less. Being comparatively frictionless, however, it is sensitive to small shocks and thus compensates for the stiction defect common to leaf springs. It acts, in fact, as a discriminating lubricator, keeping the suspension sensitively supple over small unevennesses, such as *pavé*, and yet not making it "bouncy" on rough roads.

The natural friction of a leaf spring is a valuable quality as its damps out oscillations that would otherwise continue long after the car has passed over an obstacle. It is because helical coiled springs do not possess this self-damping property that they are impossible as *main* springs on a car. Such springs are most comfortable when going slowly on a good road, but under any other conditions they are a veritable switchback in themselves. For the same reason such springs are never used alone on locomotives; in fact, it would be dangerous to fit them without the main leaf springs.

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When a helical spring is combined with a leaf spring, as on a car, the result, theoretically speaking, is equivalent to *one* spring having a mean periodicity; in practice the case is not thus readily dismissed. It is true that *one* properly-designed spring of equivalent periodicity *ought* to give the same results precisely as *two* springs combined, but actually it does not appear to do so under practical conditions on a car. The only logical reason for this discrepancy is that the leaf spring fails to function properly at one end of its range, and this is known to be a common fault in leaf springs owing to "stiction" between its leaves. Hence, the purpose of introducing the helical spring into the system in order that it may "lubricate" the leaf spring into sensitiveness to the lighter shocks.

If it were practicable to lubricate the leaf springs properly in a more orthodox way these auxiliary springs might not be necessary: nor are they necessarily desirable on all cars even now, for there are some suspensions in which the main springs themselves have been so designed that they are very sensitive as a rule to slight shocks.

It is not uncommon practice to allow a normal deflection of 4 ins. on the rear-springs of a car, the quarter-time interval for which is ·16 secs. Suppose that the standard obstacle is a 3-in. brick, the standard wheel 30 ins. in diameter, and the standard speed 30 miles an hour. The brick will strike the tyre at a point about 36° from its point of contact with the ground, and the wheel will turn one-tenth of a revolution in rising to the top of the brick. At 30 m.p.h. (43·8 ft. per sec.) this will occupy ·018 secs., the ratio of which to ·16 is as 1 to 8·9. Let us, say, therefore, that a softness factor (measured by the above standards) in the order of 9 is "comfortable."

If the speed is reduced the softness factor is reduced too, and *vice versa*, but when the speed is very low the rate of raising the car, even assuming that the spring does not "give," is so slow as to involve no shock—which is why it is always safe to go *very slow*, although it *may* also be quite comfortable to go faster. Conversely, at very high speeds, the end-on component of the blow becomes serious, and may lead to damage.

Having regard to the main fact that the periodicity of a spring is governed solely by its deflection under the load, it is clear that length, shape, thickness, &c., have no *direct* connection with the softness factor. Safety is the principal consideration that determines these matters. A spring in action is doing work, and metal, like muscle, is only capable of doing a certain amount per unit of weight. A safe allowance is 1 lb. of spring for every 4 lbs. of energy stored in it. The energy is measured as a product of weight carried and deflection produced thereby; thus, a car carrying 800 lbs. on a wheel with 4 ins. deflection stores 24 ft. lbs. of energy on the spring, which, consequently, should weigh about 60 lbs. if it is to last for ever.

The mere deflection of the spring involves molecular stress in the metal, which increases as the amount of bending per unit of length: long springs are, consequently, less stressed than short springs. Also, the movement of the shackle links is less with long springs and also for various minor reasons the long flat spring is the ideal type. The width is determined by the necessary weight after the maximum permissible length has been settled. Many leaves make for flexibility and reduced stress and are, therefore, desirable.

It is an important fact not generally recognised in the problem of suspension, that the practical conditions require a cushion rather than a spring. Resiliency, in a system for *absorbing* obstacles, is undesirable because it produces shock from recoil: for this reason coach builders generally used a fairly soft steel for their springs. The objection to this practice on cars is that such springs would settle down too quickly and bring the body dangerously near the axle; in carriage work it was of small consequence if this took place, nor was it a serious matter periodically to set up the springs to their normal height.

Having regard to the proper weight of springs it is an advantage if the spring itself is sprung, *i.e.*, carried on the car instead of on the axle, which is one of the features of the inverted arrangement of spring known as the Lanchester suspension. Another important attribute of this system is that the end of the spring to which the axle is attached moves twice as far for a given stress in the metal of the spring than is the case with springs as ordinarily fitted. Thus, a spring with a 4-in. camber provides the axle with a 4-in. lift before the spring becomes flat; whereas, by the Lanchester method of mounting, the axle can rise 8 ins. before the spring assumes the same position. This does not affect the periodicity of the spring, which under the same load would be the same in each case, but it does affect the capacity of the spring for absorbing extraordinary obstacles.

The foregoing remarks only deal with the aspect of car suspension that is presented by the problem of surmounting a solitary obstacle projecting from a smooth road. This is, we contend, a very useful introduction to the study of springs, because the case is clear and well defined. Nevertheless, it by no means covers the whole ground; for it must be remembered that the severest shocks are those that come from holes in the ground, and that at corners a spring is not solely deflected by forces from beneath, but is also subjected to forces from above, due to the swaying of the body under the action of centrifugal force when the car swerves suddenly from a straight course.

New Road at Fishguard.

DOUBTLESS those of our readers who have occasion to use the eastern route to Fishguard and the Harbour Station *via* Aberystwyth, Cardigan, Nevern, Newport and Dinas, will be immensely pleased to know that the Main Roads Committee of the Pembrokeshire County Council has decided to proceed immediately with the diversion of the dangerous declivity known as Dinas Hill, leading into Lower Fishguard, illustrated some little while ago in the AUTO., and which has the reputation of being the worst in the county, even if not in the whole of Wales.

It is a veritable bugbear to motorists both ascending and descending, particularly the former, for having in some parts a gradient of one in three, fully 60 per cent. of the cars either fail entirely to negotiate it, or do so on the reverse gear, and it is no uncommon sight to see two or three horses towing a stranded car to the summit.

Plans have already been prepared for the new road, which will proceed in a straight line through the elevated gateway on the left at the top of the hill, toward Fishguard Old Fort, and will then deviate, at an easy gradient, downwards to the existing occupation road adjacent to Bodmar near the base of the present hill. This new route will approximate a mile in length and will cost about £4,000.



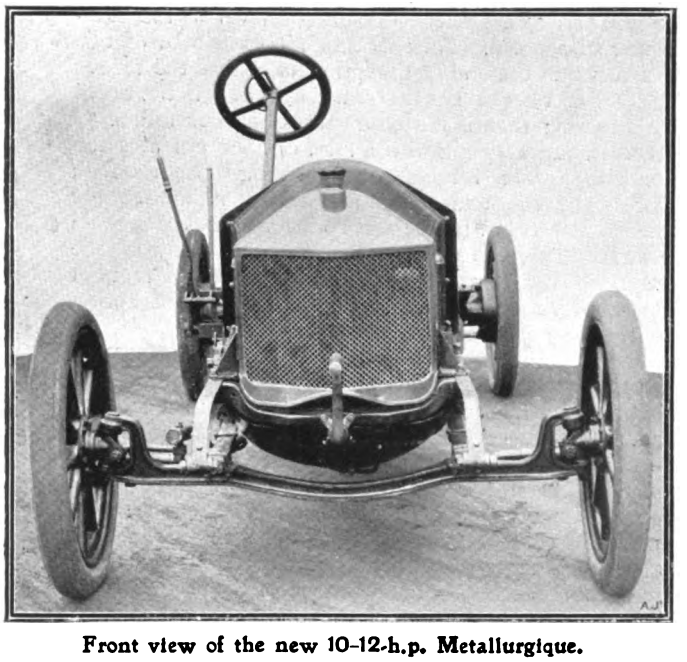
For the Best Hotels, see "Auto." Guide every week.

For Garages Open Sundays, see "Auto." Guide every week.

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THE NEW 10-12-H.P. METALLURGIQUE MODEL.

IN the interests of both buyers and vendors of motor cars it is fortunate that there is no longer any need for manufacturers, at least not for those who have an established reputation, to wait for the annual motor show or some similar event to introduce their latest production to the public. The demand for certain types of motor cars has by now grown so constant, that, provided a manufacturer offers the right kind of goods at the right price, he is almost sure to find a ready market for them at any time of the year. By the time these lines appear in print Messrs. Metallurgique, Ltd., of 110, High Street Marylebone, will have added another model to their range of cars by placing on the market the very latest production of their famous Belgian works.



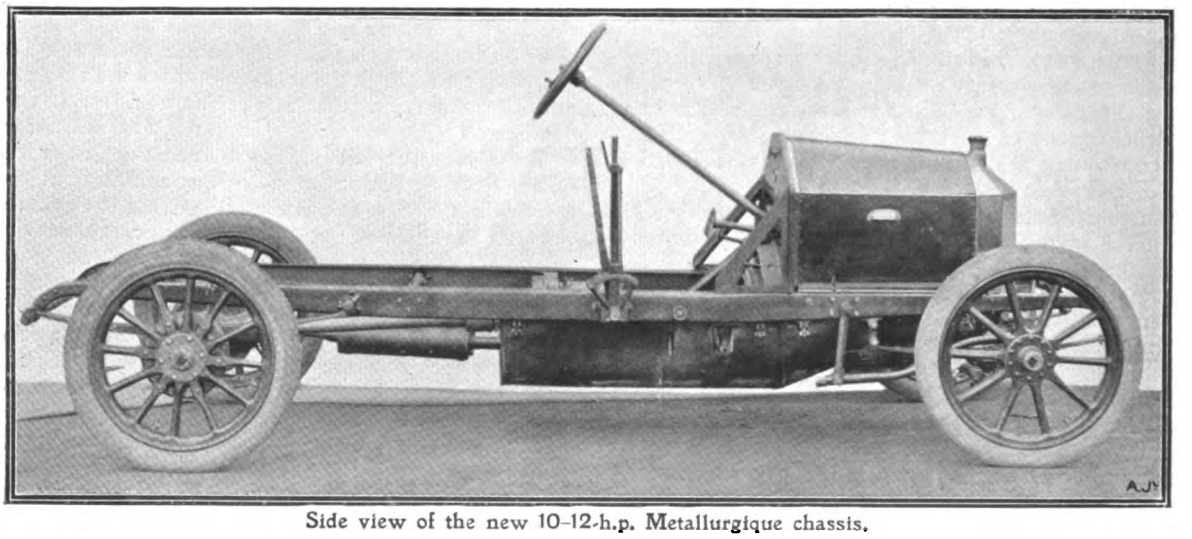
Front view of the new 10-12-h.p. Metallurgique.

In bringing out their popular 10-12-h.p. Metallurgique car they are not only proving themselves capable of producing a light and well-built car at a popular price—if such a proof were really needed—but they show a business acumen of no mean order. For we cannot imagine any time of the year that would be more favourable for the introduction of such a new car than the present time, when the thoughts of hundreds of actual and intending motorists turn towards planning a holiday tour.

This new 10-12-h.p. Metallurgique car should indeed appeal very strongly to that much-sought-after type of motorist—"the man of moderate means," who would love to enjoy a holiday in the go-as-you-please and go-where-you-please manner that is the delight for which motorists are being mostly envied. Cheap cars, however, are not always good, and good cars very rarely cheap; but in this new model the makers offer at the right moment the very thing for two people, not only to spend a pleasant holiday in, without bother and little expense, but one that is likely to give faithful service for a number of years in the manner for which Metallurgique cars are justly known.

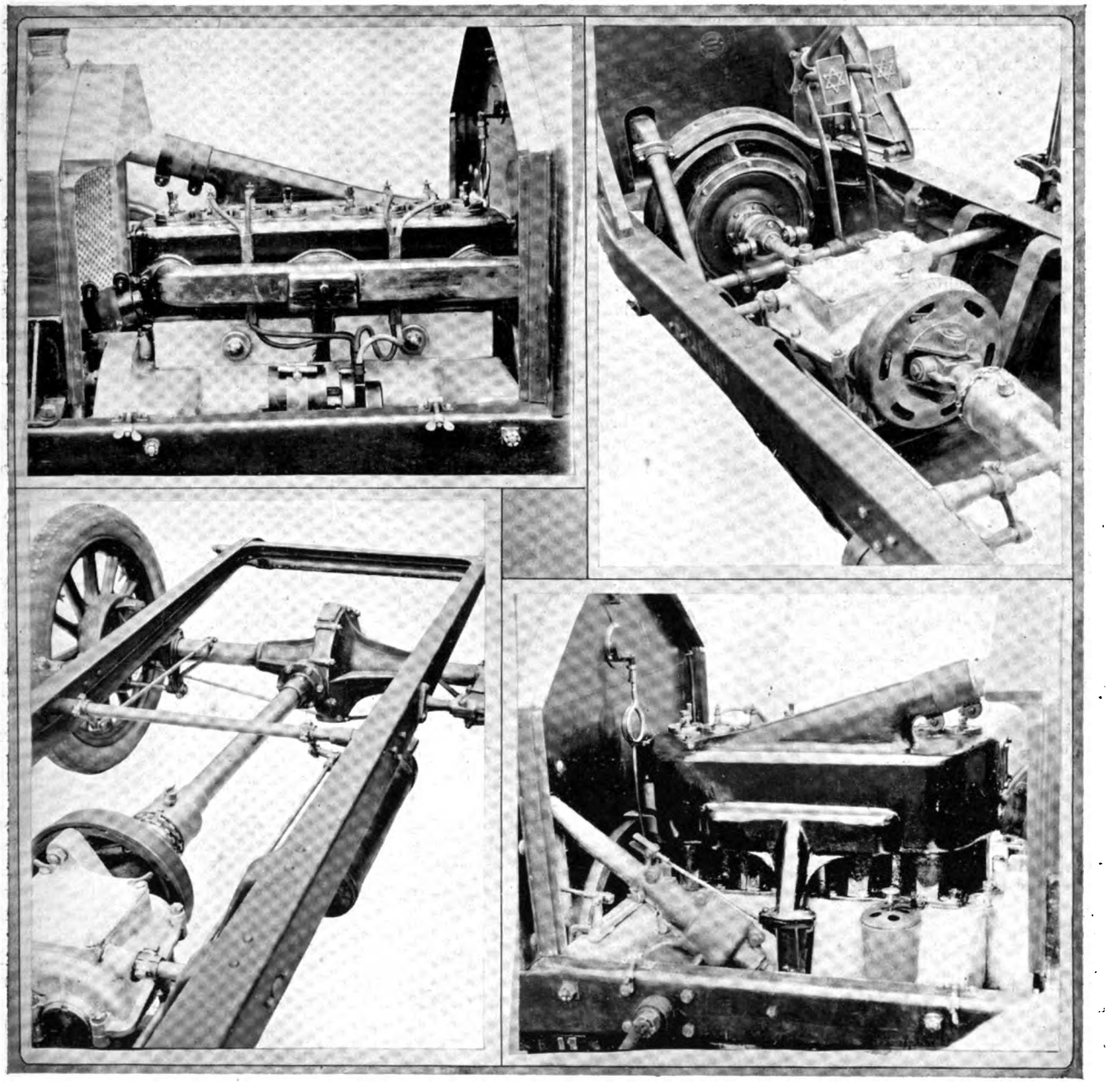
To begin with, let us say that the car is being sold complete with a smart and well-built two-seater body, fitted with wind-screen, Victoria hood, large platform for luggage and ample accommodation for tools and spares, at the inclusive price of £295. Side lamps, tail lamp and the usual outfit of tools and spares are included in this price. Much to our regret the car was not yet out of the coachbuilder's hands when we called to inspect it, so that we are not able to publish an illustration of the complete car. We shall, however, show it as soon as the car is available for the photographer; it will then be seen that it presents a very smart and trim appearance with its taper bonnet, scuttle dash, and its well-known Metallurgique radiator. But we are able to give our readers some idea of the mechanical details in the illustrations that are reproduced herewith.

From this it can be seen that the design follows closely those lines which we know so well as being typical of the larger Metallurgique models. The engine in particular closely resembles in appearance, as well as in design, the 15·9-h.p. motor that was described in these columns recently. Its four cylinders are cast in a monobloc, and have a bore of 75 mm. with a stroke of 96 mm. It is a perfectly modern and up-to-date engineering job, and is equipped with pressure feed lubrication in the same



Side view of the new 10-12-h.p. Metallurgique chassis.

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Some views of the new 10-12-h.p. Metallurgique engine, and details of the transmission mechanism.

elaborate way as are the larger and more expensive models. It should be noted that this system does not end at the big-end bearings, but that it is carried out as far as the gudgeon-pins, which are also lubricated under pressure through small tubes attached to the connecting-rods.

An Eismann H.T. magneto is responsible for the ignition, while a Zenith carburettor supplies the explosive mixture; it derives its hot air from a hot-box attached to the exhaust-pipe through a tube that is led through the centre of the cylinder casting; this is clearly shown in our illustration.

An inverted leather cone-clutch is fitted, and transmits the engine power to the gear-box *via* a universal joint of ample dimensions. The gear-box contains four forward speeds and a reverse with the usual gate change, and the propeller-shaft ends in a bevel-drive in the rear axle and is enclosed by a tube. This tubular casing, however, is not called upon to transmit the "push" from the axle to the frame, but merely takes the torque, the drive being transmitted by means of the springs, which are half elliptic and of Metallurgique quality, which is saying a great deal. For the rest the chassis follows conventional lines. The steering, as on the larger models, is very easy owing to the inclined swivel pins, and no shock can reach the driver's hands. The petrol tank is situated in the hollow of the scuttle dash.

Two brakes, as usual, are provided, the foot brake acting on a drum behind the gear-box, while the hand brake, which is compensated, acts directly on the rear wheels; both are of the internal expanding type, powerful and progressive in their action.

At the above mentioned price of £295 the car is fitted with artillery wheels shod with tyres of 769 × 90 mm.

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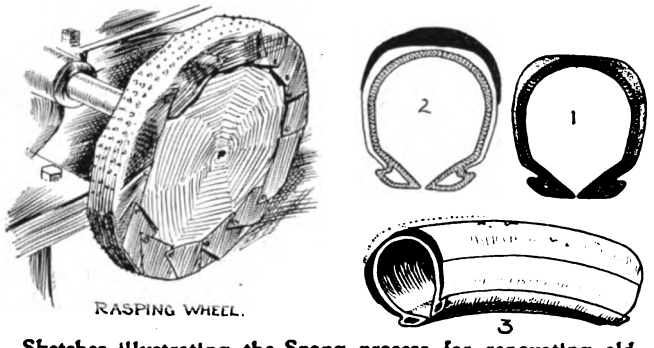
and it should be noted that no chassis will be supplied without the bodywork. We cannot but agree with this precaution, for we have seen some fine low-powered chassis spoilt by being overloaded with bodywork, and it is a wise move on the part of the makers to eliminate this possibility by fitting a type of body which is specially suited for a car of this kind. It may be mentioned that the bodywork is London made.

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RENOVATING OLD COVERS.

THE SPONG PROCESS.

MR. SPONG'S reputation as an expert in tyre repair, and the undoubted sincere personal interest he takes in his business, make a visit to his works particularly instructive, and the following notes on the things to be seen there will doubtless interest many of our readers. In the first place, it is necessary to state that Mr. Spong's business consists in buying used motor covers, removing all the rubber left on them, and thoroughly cleaning and re-treading such covers as are found worth this treatment. We will follow the progress of a worn cover through the different processes between entering and leaving the factory. Covers in all conditions are bought to the



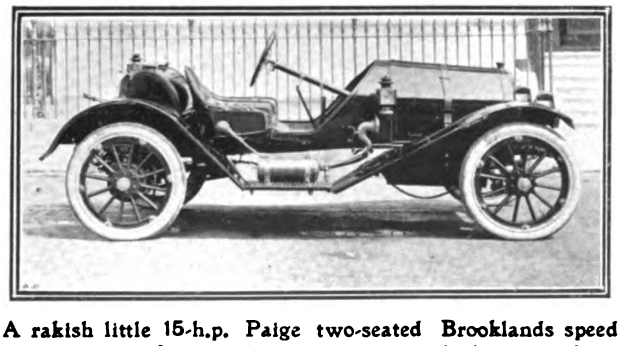
Sketches illustrating the Spong process for renovating old covers. 1 and 3 show old worn covers, and 2 shows fresh rubber vulcanized on the old cover.

extent of about two tons per week; as much rubber as possible is then removed from the tread by cutting it away with a sharp knife, after which the residue is ground off by the home-made but effective rasp which forms the subject of one of our sketches. The denuded covers are then carefully examined for cuts and other defects, and only those free from all such faults are put aside for re-treading. The rubber removed by the rasp and that cut off by the knife is then taken to other premises, where, after washing, it is mixed in a four-ton press with pure uncured rubber and a small percentage of litharge and sulphur. The mass is then passed through another press from which it emerges in the form of a thin sheet of even thickness, which is wound up on a roller between sheets of canvas, which prevent the layers from sticking to one another.

The cover meanwhile has been thoroughly cleansed with benzine, and at least one fresh layer of canvas has been added to strengthen the structure. It is worth noting that the tyre itself and the canvas used for the fresh layer are impregnated with rubber solution by painting the latter, and not, as is usually done in large tyre factories, by applying pressure. Mr. Spong claims that his method, while of course slightly more expensive in time and in benzine, is much less liable to impair the strength of the canvas, and is, therefore, worth the expense.

When the tyre is thus prepared, the thin sheet rubber is laid around it, and carefully rolled on in layers, great care being exercised to avoid air-bubbles, which easily form. Each layer, after the second, is narrower than that beneath it, thus forming a thicker tread in the centre, in the manner well depicted in the sketch. A metal mandrel, of the shape of the inner tube, is then inserted in four or five sections all around the cover, which is afterwards tightly bound up with canvas, and placed in the vulcanising oven, where it is subjected to great heat, and a steam pressure of 50 lbs. to square inch. On emerging, the tread has hardened, become springy, and has rounded off the projections at the edge of each layer. Mr. Spong's address is 193, Shaftesbury Avenue, W., and he will personally guarantee 2,000 miles from a rebuilt tyre provided the casing is in good condition.

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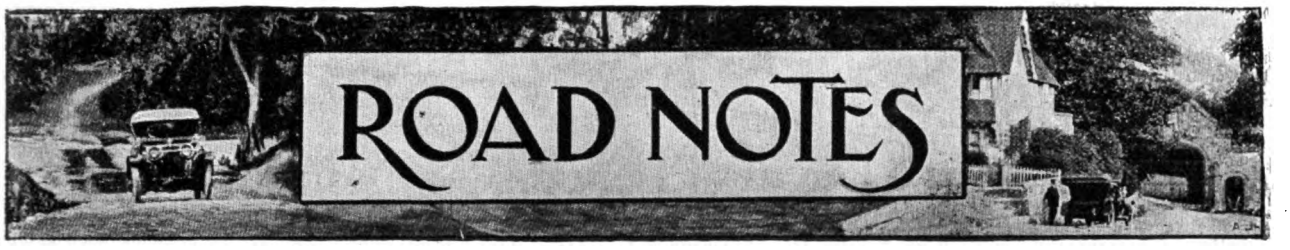
A rakish little 15-h.p. Paige two-seated Brooklands speed model, one of the American cars which have been introduced by Messrs. Charles Jarrott and Letts, Ltd., of 45, Great Marlborough Street, London, W., to the British market. This car, although priced at a low figure, is calculated to fill the requirements of the British user, and should not be classed with a number of the very cheap machines which of late have been put on the British market from the other side of the "herring pond."

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Busy Future for I.A.E.

THAT the Institution of Automobile Engineers is a "live" body is shown by the programme which has been prepared for the coming session. In addition to the Presidential address, which will be given by Mr. T. B. Brown on October 9th, a round dozen of papers have been arranged for so that it will be necessary to hold several meetings beyond the usual monthly ones. Those who have promised to read papers include Prof. W. Morgan (Surging Flow), Dr. W. Watson (Tests of Valveless Engine), Col. R. E. Compton (Roads), Messrs. M. A. Adam, G. H. Baillie (Springs), G. W. A. Brown (Carbon Deposits), G. H. Burford, A. Graham Clark (Aeronautical Engines), Dugald Clerk (Two-Cycle Engines), L. H. Hounsfield (Calculations), W. Chater Lea (Motor Cycles), G. W. Watson (Heavy Vehicles). It is probable that the subject for discussion at one meeting will be "The Training of Automobile Engineers." The monthly meetings will be held on October 9th, November 13th, December 11th, January 8th, February 12th, March 12th, April 9th, May 21st.

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COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Northwich and Altrincham.

GREAT NORTH ROAD.—Tarring is in hand between Baldock and Royston. Under repair between Stamford and Grantham. Gas-main is being laid at Knebworth. Roller working at Tempsford. Tarring is in hand on North Parade, Grantham; also at Colsterworth, and at Syston on the Grantham-Lincoln road. Under repair 1¾ miles south of Morpeth, at Clifford cross-roads south of Wetherby, 1 mile north of Doncaster. Tramway track is being repaired at Harrowgate Hill, entering Darlington. Widening operations are in hand near Neville's Cross. 6 miles south of Doncaster and 14 miles south surface repairs are proceeding.

LANCASHIRE.—Members are required to slow through Carnforth.

Lancaster–Keighley Road.—Members are requested to proceed with special care through High and Low Bentham.

YORKSHIRE.—*Malton–Scarborough Road.*—Members are advised to exercise special care at corners and cross-roads.

Leeds District.—The roadway is up in front of the entrance to Wellington Station for the purpose of laying cables. Controls are working at Moortown, Burley-in-Wharfedale and Ilkley, between Arthington and Pool on the Otley–Boston Spa Road, in Chapeltown Road, Leeds, from Reginald Terrace to St. Mary's Road.

Harrogate.—Control working on the main road from Harrogate to Leeds, just outside the Harrogate ten-mile limit.

SOUTH.

BATH ROAD.—Members are requested to proceed with special caution between Hounslow and Colnbrook; and to slow through Maidenhead. Under repair between Twyford and Sonning cross-roads; also between here and Reading. At Bath, the London Road is being re-paved, and tarring is proceeding at Newton and Brislington.

BRIGHTON ROAD.—Members are requested to interrogate the patrol at Kingswood cross-roads. Timing between Reigate and Dorking. Roller working on Reigate Hill.

BUCKS.—*Eton–Slough Road.*—High Street, Eton, will be closed from August 12th to 24th for repairs; alternative route, Keates Lane, Meadow Lane, Brocas Street.

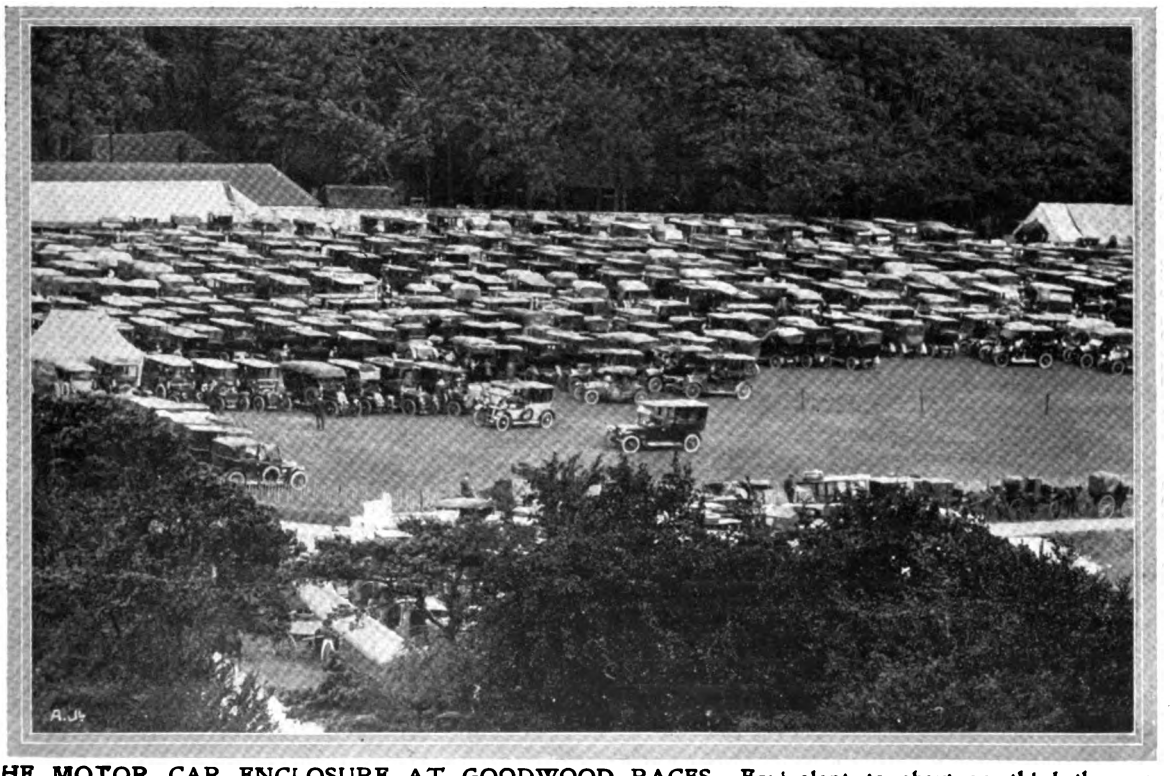
LONDON DISTRICT.—On account of timing operations special care is necessary—Regent's Park Road, near Church End station, Finchley, Golder's Green, between Hayes and Southall, Redcliffe Gardens, the Boltons, Earl's Court Road, Victoria Embankment, near Albany Gate, Regent's Park, Mitcham, Morden, Sutton, Banstead, through Croydon to Purley, between Wimbledon and Ewell, Kingston–Leatherhead, Hounslow–Staines, Hounslow–Colnbrook, Putney Heath, Harlesden, Maida Vale, Highgate, Holloway, Lewisham High-street, also between Sudbury tram terminus and Harrow Hill.

MIDDLESEX.—Control working on Staines–Sunbury Common road. Wood Green.—For the same reason special care is necessary near the junction of Bound's Green road, and Jolly Butcher's Hill.

SURREY.—Controls are likely to be in force at the undermentioned points:—South Godstone station, between Ewell and Epsom, Surbiton to Esher.

Croydon.—From 6th to 20th August the tramway track will be relaid between West Croydon and George Street. Alternative route, Poplar Walk, Wellesley Road, and George Street.

SOUTHAMPTON ROAD.—Timing operations are in force at night through Egham. Tarring is in hand between Sunningdale and Bagshot also between Frimley and York Town. Gas main is being laid down at Basingstoke. St. Cross Road, Winchester, is being widened.



THE MOTOR CAR ENCLOSURE AT GOODWOOD RACES.—Equivalent to about one-third the space required for the same number of horsed vehicles.

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Southampton-Christchurch Road to Bournemouth.—Controls are likely to be working between Christchurch Barracks and Iford Bridge, also at Pokesdown Hill.

Southampton District.—Millbrook Road is closed for repairs; members proceed *via* Howard Road, Payne's Road and Archer Road for London or *via* Waterloo Road for Southampton. Repairs are in hand near Millbrook Old Church. Tramway track is undergoing repair near Shirley. Surface repairs are proceeding at Bedford Place, near Ordnance Offices.

SUSSEX.—*Eastbourne Road.*—Members are specially requested to observe the 10-mile limit at Uckfield.

KENT.—*Dover Road.*—Timing is likely to be in force at Bexley Heath, Shooter's Hill, Blackheath and Deptford. Control is likely to be working (long-distance) between Chatham Hill and Rainham.

WEST.

Exeter-Bodmin Road.—Members should beware of straying cattle on Bodmin Moor.

Gloucester-Bristol Road.—Tramway track is being repaired; caution flags are erected.

MIDLANDS.

Coventry Road.—Members are requested to slow through Redbourne, Stoney Stratford and Fenny Stratford.

SOUTH AFRICA AND MOTORING.

By OUR SPECIAL CORRESPONDENT.

Johannesburg.

LONG misunderstood and condemned in the matter of roads and other general indications of civilization the "Hades of motorists"—as Mr. Charles Jarrott has heard it described—has had no more pleasant reading for years than its defence by two of England's best-known motorists. And the tour of Messrs. Edge and Jarrott gave, it may be taken for granted, ample opportunity of judging. To-day we see that however marked the encomiums in the diaries of these two travellers, South Africa is not content to sit still upon the ubiquitous stoep, but means to emulate older nations in the construction of great turnpikes suitable to modern traffic. Possibly the Africander scents a pile beneath the sugar: at any rate he sees that more is required than the construction of good roads in the neighbourhood of important centres and is making his initial attempt to link up hinterland with coast and make motor car communication safe, easy and pleasant.

The Natal Provincial Council, with an enterprise thoroughly characteristic of it, has resolved upon the construction of a great main road from Durban to the Transvaal border, and already the work is in hand. That the Transvaal Council will meet it goes without saying, and negotiations are already afoot towards the ensuring of this. The 500 mile turnpike will mean enormous expense, but, after expense well worth itself. This is the initial undertaking; next we will see the Rand to Bloemfontein and the Cape; the Rand to Lourenco Marques; the Rand north to Rhodesia. A week back the *S.A. Motorist* equipped a surveying car to provide a good map for motorists between Johannesburg and Durban, and I hear to-day that the destination was safely reached, the wellnigh impassable mountain paths—more or less Kaffir tracks—successfully negotiated, and a good guide to Natal's seaport obtained. It means much to the motorist in a country of wide spaces and sparse settlement.

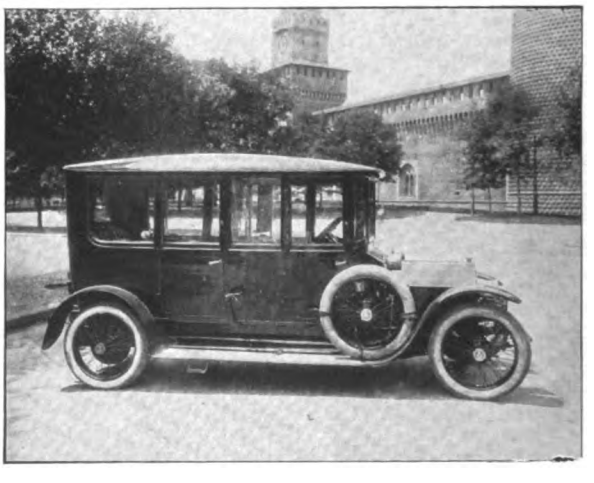
A Cheap Car Controversy.

A Sunday contemporary has set the motor world by the ears here in the matter of quite an innocent reference to, and warning against, cheap and trashy American motor cars. The fact that all here are agents not manufacturers is, of course, responsible for the hubbub. The writer's reference has been explained as referring not to the many makes of best U.S. standard, but to the rubbish sent out at anything under £100—quite a feasible argument. But our American agencies will have none of it; their cheap light cars are as good, every whit, as our British makes. The article, as indicated, has led to much heated newspaper argument, but the reasonable man has the right end of the stick after all. He holds that the American "cheap" car is built to run a year and then be superseded by another, whilst an English car, built on strong, substantial lines, makes for comfort and endurance. The two types and ideas are "wide as the poles apart," and need not come into conflict. Few seem to recognise that. Young Jan's ostentatiousness and Vom Piet's comfort are separate branches of the car catering department.

The biggest contest of the Transvaal motoring year will be fought on Sunday next. It is the Reyersbach Trophy, a reliability trial of fully 100 miles over a passable course between Baragwanth (Johannesburg) and Van Wijk's Rust, a district of historic associations, as it was here that the main body of troops advanced on Johannesburg in the late war. Entries are unusually numerous, and a feature of the gathering will be a special competition for American cars, these meaning American-made chassis, and not necessarily the bodies.

Petrol's Price.

Amongst many matters which have given us seriously to think in the Rand has been the price of petrol, which to-day runs at 2*s.* 6*d.* per gallon. Complaints have been numerous and bitter, yet we are indebted to the AUTO. for the knowledge that we are not so badly off as we make ourselves out to be. Paris, we see, pays 2*s.* 3*d.* and Berlin 2*s.* 1*d.*, and that despite the enormous wholesale tank-ship quantities imported by both Germany and France. We are but a small consumer, and a distant one, yet our price is nearing the same. Surely we have small reason of complaint.



A Lancia car, fitted with Riley detachable wire wheels, just built to the order of Puccini, the Italian composer and author, amongst other successful operas, of "The Girl of the Golden West."

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By VICTOR HART.

The Scottish Trials.

THE recently concluded six days' trial in Scotland, although termed a reliability trial, was more in the nature of a test for the drivers. I should be inclined to describe the event as a sporting trip, because machine reliability was subservient to traversing long distances at the scheduled speed of 20 m.p.h., and as there were only two checks each day, viz., at the luncheon places and sleeping places, the competitors were under no obligation as regards repairs or adjustments. The routes were over much of the country traversed in the last Scottish car trials, together with a good many miles of mountain roads that we should look upon down south as moorland cart-tracks. To complete about 1,000 miles speaks well for the skilful driving of those competitors who gained gold medals—these numbered 29 (out of 70 starters)—with 11 silver medals and 6 bronze medals to others who lost various marks for time penalties. Too much importance must not be attached to this Scottish event, for many of the gold medallists suffered such machine mishaps on the road that it requires a very vivid imagination to describe them as "reliable." The lame ducks, nursed day after day, and only hauled to the finish by the ingenuity of their drivers in rigging up frames, doctoring wheels, &c., are classed equal with the small percentage which gave no trouble. As usual, the first-class awards will be helpful to advertising departments of factories. It is a pity that really poor machine performances cannot be differentiated from those makes which worthily uphold their past reputation.

The A.C.U. Six Days.

Next Monday the crowd of over 130 competitors will start at 8 a.m. from Taunton on the tenth of the annual 1,000 miles reliability trials. The number of entrants—including one lady—constitutes a record, and there is hardly a machine on the market which is not represented, either by trade or private owner contestants. The passenger machine section is disappointing, not as regards the entries only reaching 20, but by reason of the small amount of support given by cycle-car manufacturers. This type has been so well boomed in the technical and general press that one would have expected quite a number to have secured the splendid opportunity for publicity in this trial. Yet there are only two G.W.K. four-wheelers entered—these have already proved their merits in the past seven months—and in the "tri-car" type there are only four machines, viz., one Morgan, two A.C. sociable, and one Autotrix.

The conditions are not unduly severe, the main feature being to run at a steady pace of 20 m.p.h., with ten minutes allowance without penalty for time occupied above or below that speed. With but two exceptions, there is not a yard on the route of a worse gradient than 1 in 6½, so that any machine which can climb Westerham Hill ought to be able to comfortably cover itself with glory. The regulations permit any repairs or adjustments on the road, by the driver *only* of any machine, subject to the qualification that spares used are carried throughout the trial, and are limited to the list of such things printed in the programme. This year, for the first time, the test hills will not be announced, and as failure on any hill involves 50 marks penalty, the farcical arrangement of previous years that permitted men to stop at the foot of hills as long as they liked to lower gears, fit other belts, tune up carburettors, &c., is properly abolished. A further precaution for this purpose is the instituting of secret checks, worked by two official timekeepers, although this will not worry the drivers of reliable machines that are fitted with good tyres, because the time allowance of 10 mins. either way gives 20 mins. each morning and each afternoon. A good deal of work in the way of replacements or adjustments can be achieved in that time.

The secret check scheme has been devised with two objects, *i.e.*, to prevent making up from 30 minutes to 45 minutes between controls (in previous years this amount of time was regularly gained and utilized for big repairs) and to preclude waiting about near the foot of some steep hill to cool off engines. My own opinion inclines to a time allowance of only 5 minutes either way as this would have definitely settled the difficult problem of penalising repairs, the physical impossibility of keeping observation on every machine over every yard of the routes rendering abortive all schemes hitherto evolved for watching by travelling marshals. Another new and good regulation is a 5 marks penalty for each ascertained defect, *not necessarily at the end of the trial*, and if the three judges take their duties seriously, they should look out for machine mishaps at the luncheon stops and upon arrival each night at Taunton. In 1911, at Harrogate, it was notorious that many drivers came in with broken parts at night and replaced these with new ones within a quarter of a mile of the start on succeeding mornings. Provided this regulation is adhered to strictly, we shall not again see the regrettable incidents of machines with several broken spokes in wheels, brakes that were so only in name, and similar happenings, receiving gold medals. Tyre covers are to be marked in some way, perhaps by branding, so as to check surreptitious replacements, the fitting of a new cover on the road or in garage at night involving five marks penalty.

The tyre trials, having been sanctioned by the Manufacturers' Union—that body only decided this matter three days before the entry list closed—we shall at last be able to learn officially how tyres perform for 1,000 miles. The eight companies who have entered their productions for testing are to be congratulated on their enterprise. This break away from the foolish custom in reliability trials, of treating tyres differently to machines, is a good augury for future improvement in these goods.

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THE NEW DAIMLER 3-4 TONNER.

IT is a mistake to suppose, as some people do, that the interests of the automobile engineer are wholly or even mostly concerned with the building of pleasure cars. On the contrary, there is not a shadow of doubt that the commercial utility throughout the world of the self-propelled vehicle will, in the course of time, altogether overshadow the use of the pleasure car, great as that, too, will have then become. And so it is that the observant student notes the steady increase in the attention paid to the commercial vehicle by a firm like the Daimler Co., who have just introduced a new 3-4 ton chassis that ranks well ahead of previous practice, and should prove immensely popular as soon as its merits become more generally known.

Its chief characteristics are power, speed and silence. Under ordinary running conditions, the vehicle is as noiseless as the average touring car of but a few years ago, while its power may be judged from the fact that with a load of nearly four tons on board the chassis has covered 100 miles of average country inside four hours, and this without special effort. All ordinary hills are taken on top gear, while the first gear is sufficiently low to enable the lorry to be started from a standstill on the steepest grade.

We speak here of the Daimler vehicle as a lorry, since it is in this form that the first batch of chassis are undergoing their tests. But the designs have been prepared with a view to London 'bus requirements, and as a matter of fact, there are 100 vehicles going through the Daimler works at the present time for operation in London by the M.E.T. Co.

Passing to technicalities, we would first point out, that the frame is constructed of wooden side members, reinforced by flitch plates. This form has been decided upon after lengthy experience with all other forms, and it has been judged that this is the most satisfactory construction for withstanding continuous vibration and shocks. There has been no attempt to cut down the weight of the frame or cross-members, and the whole production looks substantial enough for all eventualities, however severe.

The engine has four cylinders in pairs, bore and stroke 110×150 mm. It develops over 40-h.p. at 1,000 revs. per minute, and considerably more at higher speeds, though it is not intended that the engine should be run much over 1,200 revs. The whole design is on much more substantial lines than the ordinary touring car engines, and all bearings are of liberal dimensions.

Lubrication is effected on the "trough and splash" system, a multiple plunger pump feeding the troughs from the big reserve supply in the base, and the troughs themselves being raised and lowered by the movement of the throttle lever. Thus the amount of oil fed to the bearings is increased automatically to suit the load on the engine, while at low speeds, when the engine is running light, there is no risk of smoking at the exhaust. While on this point of "public convenience," it is worthy of note, that each component of the transmission system is provided with a tray underneath to collect any oil or grease that may chance to escape.

Silent chains are used for driving the eccentric shaft which operates the sleeves and the magneto shaft. A dual magneto is employed, and an interesting point is the enclosing of the magneto in a cover which can be locked up, so that the driver cannot interfere with the adjustment. The engine is remarkably easy to start, and a couple of turns is all that is needed to get it going from cold, even when starting on magneto.

A pilot-jet type of carburettor is employed, with a big variable jet for normal running. The petrol tank is placed beneath the driver's seat, feeding by gravity, with auxiliary air pressure in case the supply fails when the vehicle is running up a steep grade.

From the cone clutch, the power is taken to the three speed gear-box, which has silent chains as the driving arrangement. Top-gear is direct driven and the chains are then at rest. If so desired by the purchaser, a spur gear-box can be substituted for the chain-driven type.

A special feature is that the universal joint at the rear of the gear-box is constructed of leather discs, which afford a strong and yet readily flexible coupling. The worm is placed above the axle, and a useful feature of the design is the arrangement whereby the worm gearing and differential can be withdrawn complete from the top of the axle casing, after the driving shafts have been removed through the wheel hubs.

Both sets of brakes are of the internal expanding type, operating in separate drums on the rear wheel hubs. The springing is of the orthodox type with the exception that auxiliary C-springs are fitted to the rear end of the front springs. Good clearance is provided everywhere beneath the vehicle in this respect; the very severe Metropolitan Police regulations are more than complied with.

The first lorries produced, which are being run night and day in order that a thorough test may be made, are fitted with electric lighting dynamo and equipment, and we understand that this will be a standard part of the outfit for omnibus work.

On a normal trial run a load of over 3½ tons of pig-iron is carried on the lorry which with the net weight of the chassis at 2 tons 8 cwts. makes a gross running weight of over 6 tons. The engine made light work of this load. From a standstill, the normal speed of 20 miles an hour would be reached inside of 50 yards, and, as stated before, the top speed attained was well over 30 m.p.h. Under these circumstances the engine was doing about 2,000 revs. per minute; but for normal running the throttle would be set so that this high speed could not be attained—for a seven-ton commercial vehicle at a 30-mile-an-hour pace is not a safe thing to entrust to the mercies of an unskilled driver. As a matter of fact, a special speed governor will be fitted to prevent racing at any time.

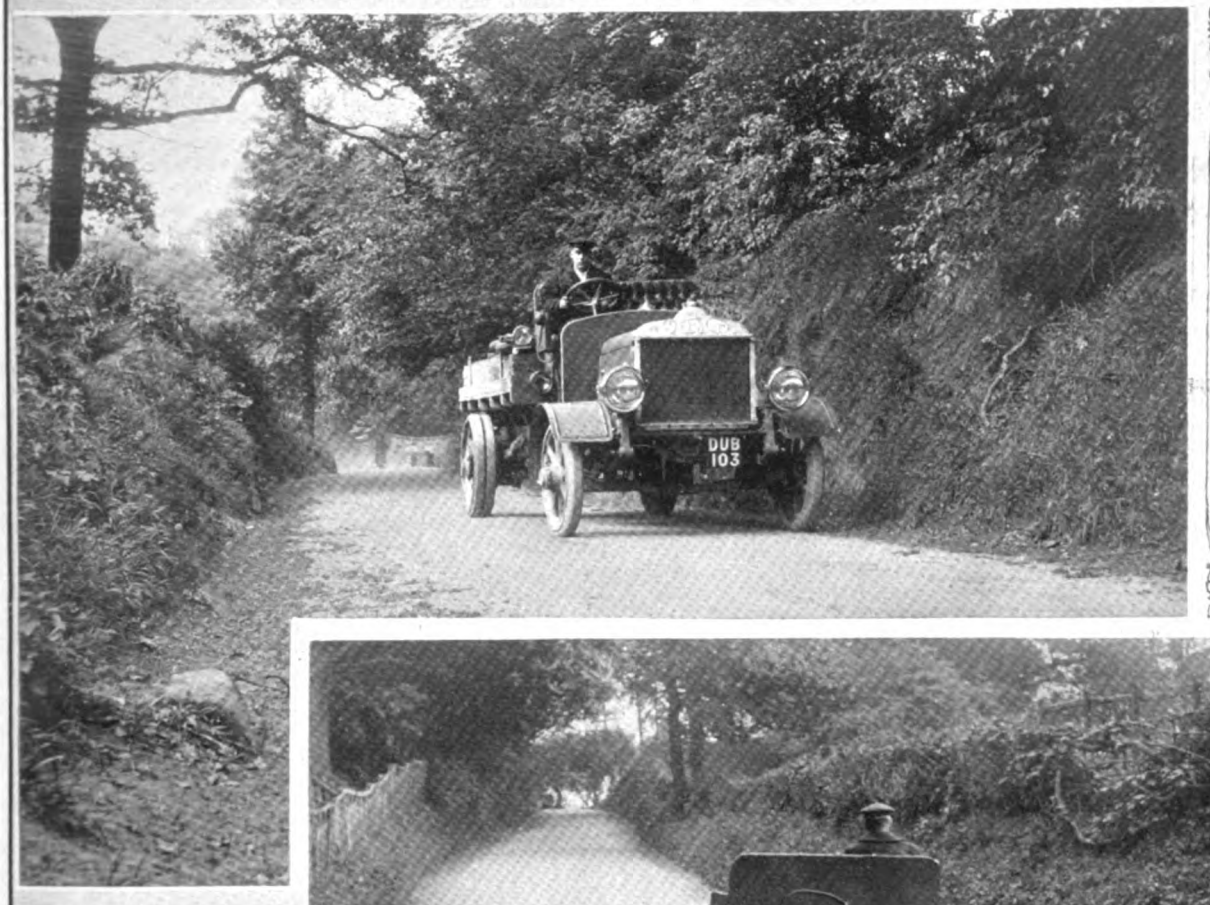
Stoneleigh Hill, with a grade of 1 in 8, is taken on second speed, and a start is made on the steepest part. Sunrising Hill, 1 in 6 at the worst part, is easily mounted on first speed with good reserve of power in hand. The top speed climbing capabilities of the lorry may be gauged from the fact that, with the above load, only two changes of gear are required on the run from Coventry to London, and *vice versa*.

As regards petrol consumption, the average running is about 10 miles to the gallon, equivalent to 65 ton-miles per gallon—quite an excellent performance.

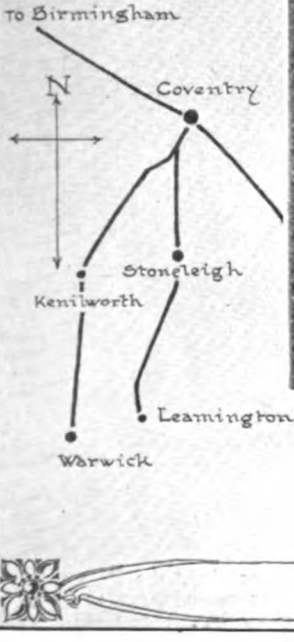
From these tests it will be realised that the Daimler 3-4 tonner is a most promising vehicle for goods and passenger transport and we have no doubt that this branch of the Coventry firm's activities will gain for them as much renown as their touring cars have done in the past.

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THE NEW 3-4 TON DAIMLER LORRY ON STONELEIGH HILL.







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The National Society of Chauffeurs

OFFICIAL NOTICES

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Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Owing to the Bank Holiday, the usual Committee meeting was not held.

Insurance Act.

Members who have not selected their approved society in order to obtain the State benefit under the Act are invited to place their cards with the newly-formed Motor Drivers' Society, now seeking approval solely for the purpose of working the Act. Your general secretary will act in the capacity of secretary to the approved society, therefore your interests in this matter will be catered for. Members wishing to sign the Society's form should apply to the secretary. If you have already signed a form for another approved friendly society, you may, if you wish, send notice of withdrawal and place your card in the new society when returned from your employer at the end of the quarter, *i.e.*, in October. If you have signed a form for any insurance company, you are strongly advised to withdraw and place it elsewhere.

Legal.

The summons taken out by the London County Council against the Society with reference to the Employment Bureau was down for hearing on Wednesday, July 31st, at the Westminster County Court. A formidable array of counsel were present, but the case was adjourned until Wednesday, August 7th. A full report of the hearing will appear in next week's official notes.

There have been many rumours in relation to a club meeting not a hundred miles from Sherwood Street. We are not concerning ourselves with the affairs of this particular club, but we must express a hope that chauffeurs will not be induced to subscribe towards a certain limited liability company. Rather communicate at once with your general secretary at Halkin Street.

Accepted for Membership.

Stanley Bartley, Northwich.
William Rhodes, Surbiton.
Duncan Cameron, Inverness.
William Goddard, London, S.W.
Benjamin H. Harrison, Sheffield.

Applications for Membership.

James Harris, Witham-on-the-Hill, Lincolnshire.
Allan Outen, Havant, Hants.
George Walpole, London.
John Congdon, Earl's Court.
Herbert Bennett, Arundel, Sussex.
Henry Heritage, Arundel, Sussex.
Wm. Reynolds, Ravenscar, Yorks.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

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L.C.C. *versus* National Society of Chauffeurs.

HIS HONOUR Judge Woodfall in the Westminster County Court on Wednesday morning gave judgment against the London County Council in their action against the National Society of Chauffeurs for 2 guineas registration fee for the employment bureau carried on by this Society. It appears that according to the existing regulations the fee for such a bureau, when carried on for profit, is £2 2*s.*, while bureaux that are not carried on in this way are charged one shilling only. This amount was paid by the Society, when due, earlier in the year. It is well known that the employment bureau of the N.S.C. does not charge any fee, and its services are free both to employers and to members seeking employment. It was therefore contended that the L.C.C. had no right to change 2 guineas, and this opinion was upheld by Judge Woodfall who gave a verdict in favour of the National Society of Chauffeurs with costs. We congratulate the members on this decision.



There is a subtle appropriateness about the Port of London Authority acquiring four motor ambulances these days of strikes and disturbances, but we hope that their actual use may not be diverted this way from their true purpose of succouring those who suffer accidents in honest work. The machines in question have been built by the Cedes Electric Co., and supplied through Messrs. Markham and Prance.

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Notes from New York

Pittsburg has joined the steadily increasing number of American cities which have made by-laws prohibiting the use of cut-outs. The authorities also propose to make a by-law restricting the speed of motor cars in the city to twelve miles an hour.

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Several interesting decisions have recently been given in the American Courts regarding insurance questions. In Massachusetts it was decided that the estate of a man killed by his own recklessness in "exposing himself to unnecessary danger" cannot obtain the money under certain policies, while in the New York Courts it was decided that a spectator at an automobile race was "exposing himself to unnecessary danger" and consequently any insurance against death or injury in a mutual benefit association was rendered void.

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It was no doubt a very good compliment to the efficiency of the Klaxon horn that the local authorities of Des Moines, Ia., decided that Klaxon horns should only be used in the neighbourhood by vehicles belonging to them, but it was rather hard on the makers to have their market thus restricted. Their protest has been effectual, and now those of the citizens who wish to do so are at liberty to use the Klaxon horn, although they must only use them when necessary.

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It has now been definitely decided that a New York Motor Car Show will be held from January 11th to 18th next, and that it will be divided between the Madison Square Gardens and the Grand Central Palace, one ticket giving admission to both sections. The Commercial Vehicle Show under the same arrangements will open on January 20th and continue until January 25th.

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A novel decision was given in the Pennsylvania Supreme Courts the other day holding townships responsible for damages sustained by vehicles or persons injured in crossing water breaks or "thank ye ma'ams" in public roads. The defence was that the water breaks had been in the road for several years and that they were necessary to carry off surface water. The Court held that neither of these defences was good as time did not sanction unlawful obstruction of highways, and water breaks were not considered necessary by modern road builders.

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There is a possibility that the Elgin Road Races will be held, as the Chicago Automobile Club has taken up the work laid down by the Chicago Motor Club and is endeavouring to arrange for the races to be held on August 30th and 31st. The races will be for non-stock cars; that for the Elgin National Trophy will be for cars of 600 cubic inch capacity and under, while the other classes include the 450 and 300 cubic inches capacity and a "free for all."

• • •

A new silent witness appeared in a case which was tried at East Boston, Mass., the other day when a fishing boat owner was summoned for not complying with the order requiring that boat motors should be so silenced that the exhaust was inaudible at a distance of 2,800 ft. For the prosecution a dictatophone was exhibited, reproducing records obtained at the stipulated distance from the motor boat. The Court held the offence proved, but the defendants were released after being warned. In view of the increasing number of places which are making by-laws against cut-outs, it is not unlikely that noise-traps will be instituted, with the police using a dictatophone instead of a stop-watch.

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A somewhat amusing argument in posters has been carried on by motorists and farmers in Connersville, Ind. The motorists had the first innings, and put up a lot of big posters printed in red bearing the sarcastic rules about taking the car to pieces, and hiding the parts in the grass, &c., on the approach of a horse vehicle. The farmers retaliated in kind with a set of rules for horse-drivers printed on yellow posters. The most prominent rule was that funeral processions upon the approach of an automobile should tear down the nearest fence, and detour through the field to give the motor right of way.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Official.—The total membership of the Association is now above 52,000.

Lost Property.—At this time of the year the Association receives from the road patrols a considerable number of articles found by them on the roads. A careful record of such lost property is made, and members losing accessories, motor clothing, &c., from their cars are invited to communicate full particulars, including a description of the article, district where lost, &c., to the Secretary. Members frequently recover their goods through the Lost Property Department of the Association.

Sentry Boxes and Road-Side Telephone Service.—Sentry boxes are already erected at the points indicated below, and telephones have been installed for the use of members. No charges have to be paid for local calls, but if trunk calls are made the patrol in charge will collect the trunk call fees.

Location of Boxes—

Esher (near Sandown Park gates, Portsmouth Road). Tel. No. 12 Esher.
Ashtead (Worthing Road). Tel. No. 574 Epsom.
Potter's Bar (Great North Road). Tel. No. 32 Potter's Bar.
Milford (Portsmouth Road). Tel. No. 22 Milford.
Clandon Cross Roads (Portsmouth Road). Tel. No. 3 Ripley.
Staines Bridge (Southampton Road). Tel. No. 123 Staines.
Hindhead (Portsmouth Road). Denham (Oxford Road). Gailey Cross Roads (Staffs). London-Colney (Coventry Road). Warlingham (Eastbourne Road). Whyteleafe (Eastbourne Road).

Other boxes are being erected as fast as possible, and it is hoped that the service on the main roads round London will be complete in a few weeks.

Speed Limits.—Will members please note that a ten-mile speed limit is now in operation on certain roads in Holyhead.

The County Council of Essex have applied for ten-mile speed limit orders for Stansted and Witham. A limit is already in operation at Witham, and an extension is being applied for. Members able to contribute useful information bearing upon these two applications are invited to communicate immediately with the Secretary.

Signs.—The Association erected over 150 road signs during July. These included 70 "School," 15 "Direction," 25 "Village," and 40 "Danger" signs.

Tolls.—A member has notified the Association that although a motor-cycle may cross a bridge between Abingdon and Long Wittenham upon payment of one penny, three-wheeled motor vehicles are charged sixpence each way. The Association has obtained concessions in the shape of reductions in toll charges for motor vehicles, and the proprietor of this bridge is now being approached with the same object in view.

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RACES RECORDS AND TRIALS.

The Austin Car in the Tsar's Cup Contest.

WITH regard to the competition for the Tsar's Cup, it should not be overlooked that right up to the last day it seemed practically certain that it would be won by the 40-h.p. Austin, but a burst tyre put it out of the trial. We understand from the Austin Motor Co., Ltd., that what happened was :

A very high average speed had to be maintained throughout the contest, and at the time of the accident their car was doing 60 miles per hour, when a tyre burst and the cover came right off the wheel. The car swerved into a thick telegraph post, which it cut in two, throwing all the occupants out, rebounded a distance of about 30 ft., then ran forward again into a ditch and overturned. From reports received, the damage done to the car is remarkably light, considering the high speed at which it was travelling.

R.A.C. Tests with Colonial Napier Car.

IN our issue of the 20th ult. we gave some particulars of a test conducted by the R.A.C. with a 15-h.p. Colonial type Napier over a cross-country route on the South Downs, a map of which was given. The official certificate has just been issued by the R.A.C., and gives the following results :—

A circuit on the South Downs, 13·29 miles long, was traversed 18 times.

The total distance travelled was 263·2 miles, which included the distance between the route and the lock-up. This total distance was travelled at an average speed (running time only) of 14·4 miles per hour. The car was oiled and greased before the start each day. On one occasion the fan-belt was dressed before the day's run. With this exception, no work of any kind was done. At the discretion of the driver either the engine was stopped or the gear put into neutral when descending hills.

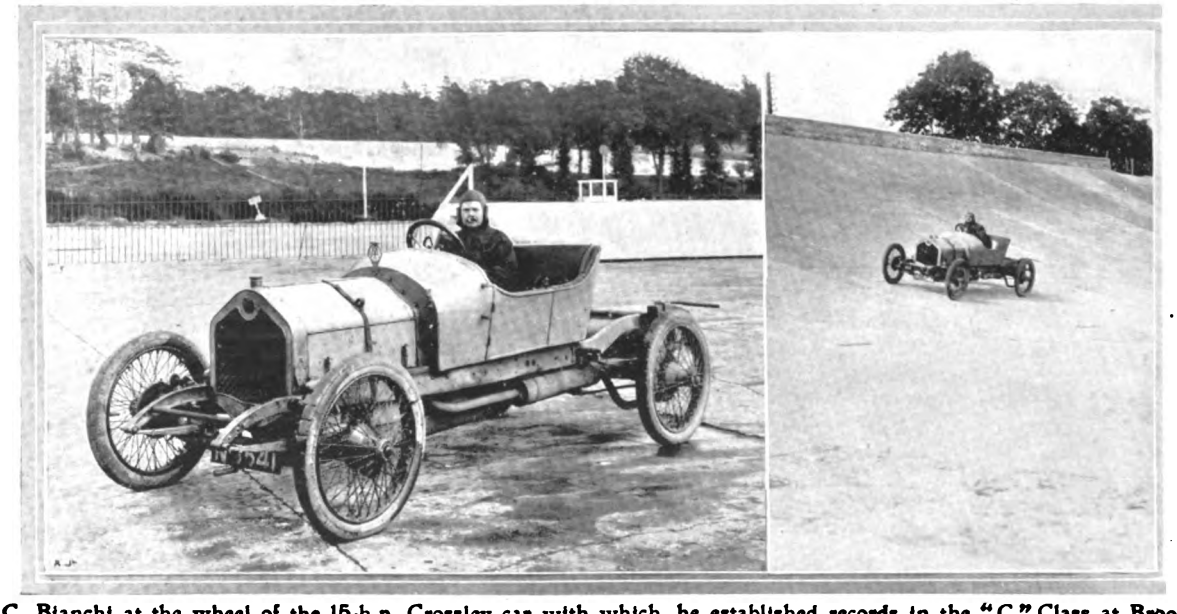
The petrol consumed during the road portion of the trial was 16·64 gallons, the consumption working out to 15·82 miles per gallon, or 27·77 ton-miles per gallon. The weather was fine and warm.

After the road portion of the trial, the car was driven to Brooklands Track and timed over the flying half-mile. The speed attained was 43·14 miles per hour.

No observation of reliability or consumption was recorded while the car was travelling from the Downs to Brooklands Track, but the car remained under observation at all times.



The 50-guinea trophy presented by Mr. Hermann Aron, one of the principals of the Rotax Accessories Co., to the winner of the 70 m.p.h. Handicap at Brooklands on Bank Holiday.



C. Bianchi at the wheel of the 15-h.p. Crossley car with which he established records in the "C" Class at Brooklands on the 2nd inst., his speeds being: Half-mile, 73·8 m.p.h.; 1 mile, 73·29 m.p.h.; kilometre, 73·51 m.p.h.; ten laps, 72·46 average m.p.h. On the right, Mr. Bianchi is seen travelling "all out" round the track.

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The mechanical details of the car tested were:—

Bore and stroke of engine	3¼ in. × 5 in.
Number of cylinders	4
Weight of car	3,302 lbs.
Average weight of load during trial ...	631 ,,
Average total running weight	3,933 ,,
Type of body	Four-seated.
Wind resistance area of body	12·4 sq. ft.
Gear ratios, top speed	4·74 to 1.
2nd ,, ...	8·54 to 1.
1st ,, ...	20·00 to 1.
Size of tyres	915 mm. × 105 mm.
Country of origin	England.

A New Side-Car Record.

HAVING started from the General Post Office on the previous Saturday, with the object of beating the motor cycle side-car record for six days, Mr. Norman Taylor was successful, and finished with a score of 1,540 miles, as against Mr. Butler's 1,459 miles, the previous record.

New Records at Brooklands.

THE records in the Brooklands Class B. cars with engines up to 2,048 cc. capacity were considerably improved upon last Tuesday, when Mr. F. W. Burgess on a 12-h.p. Calthorpe covered the half mile in 23·79 secs. at a speed of 75·66 m.p.h. His time for the kilom. was 29·63 secs., (75·49 m.p.h.), and for the mile 48·46 secs., (74·29 m.p.h.). This performance appears all the more creditable when it is considered the engine is only 69½ mm. bore by 125 mm. stroke, a total capacity of 1,896 ccm.

An "Old Brigade" Hill-Climb.

A NOVEL event will be included in the programme of the forthcoming annual hill-climb of the Leicester A.C. in the shape of an Old Brigade Handicap for cars of not less than a certain age, owned and driven by members of the club. The prize will be awarded for the best performance on formula.

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MOTOR BOATING.

The R.M.Y.C. Racing Week.

ALTHOUGH the weather improved towards the end of last week the wind and rain which prevailed during the first few days continued to spoil the arrangements made by the Royal Motor Yacht Club for its racing week. It was somewhat in the nature of an experiment and drew very good entries, many of the B.M.B.C. boats which were in Southern waters being down to take part, and the racing was looked forward to with more than ordinary interest. Several new hydroplanes were also out to win their spurs and to show their mettle against the new B.I.T. challengers and the older boats, including the Duke of Westminster's veteran Wolseley racer, "Ursula."

On the opening day, Monday week, only one race could be held—it was a three-mile event for cabin cruisers, and the first prize was one of the S.M.M.T. cups. Four boats started, and the winner proved to be Commander Cumming's "Commander," and Mr. H. W. Hutchinson's "Dranoel" took second prize. Three races were run off on Tuesday, commencing with an event for boats of under 20 knots speed, which was won by Mr. Ramsden Tagore's "Mildred," with Mr. Masser Horniman's "Mineric II" taking second prize. This was followed by a sprint for all-comers, in which there were seven starters. The time allowances were given at the start, and the finish was a splendid one, the winner, Mr. Geale Dickson's "Albatross III" getting across the line with 27 secs. to spare with Col. Cowper-Essex's "Pixie II" taking second prize by 5 secs. from "Dranoel," while only 1 sec. separated the last-mentioned from Mr. Lance Gamble's "Dyack," which was similarly placed from Mr. Bird's "Rip II." In the last race—for the restricted class—"Rip II" had a hollow victory, as "Pixie II" and Mr. Niell's "Minimum" both went the wrong course.

The Time trials over the measured nautical mile for the *Motor Boat* Trophy were down for Wednesday, but after Mr. Mawdsley Brooke's "Baby VI" had made a trial it was decided to postpone the event owing to the bad weather. The only race held was that for boats under 15 knots speed, and it ended in a win for "Mildred," with the second prize awarded to Mr. Kenneth Dry's "Neva." On Thursday the chief event was the 33-mile race for the Bernard Redwood Gold Cup, in which the starters were "Ursula," Lord Montagu's "Carina," the Marquis of Anglesey's "Mona" and Mrs. Edgar Thornton's "Columbine." Unfortunately "Ursula" apparently struck some floating wreckage as one of the stern brackets was broken and forced through the hull. In order to prevent the boat sinking, Mr. Robins, who was in charge, beached her outside Calshot Spit. The result was a victory for "Mona," her time being 1 hr. 8 mins. 11 secs., while "Carina" was second in 1 hr. 10 mins. 33 secs. A race for cabin cruisers went to "Neva," with "Dranoel" a good second and Mr. T. A Comber's "Flora" third. "Dranoel" won the next race—a handicap for boats under 15 knots speed—with Mr. F. P. Armstrong's "Solace" second. An all-comers' handicap concluded the day's sport and it was won by the Earl of Hardwicke's "Spring Maid," with "Mineric II" second.

The weather was better on Friday and a full day's racing was got through. The first motor boat event was for auxiliary cruisers for the Johore Challenge Cup. "Mildred" was the only starter and she went over the three rounds of the course, once with motor only, once with sails alone and once with sails and motor combined. A handicap for boats under 10 knots brought out four starters and ended in a victory for "Neva" with "Spring Maid" a good second and "Solace" third. The handicap for craft between 10 and 20 knots resolved itself into a duel between "Commander" and "Mineric II" and it ended in favour of the former by 58 secs. she taking 33 mins. 27 secs. for the distance of 8½ sea miles. Unfortunately from various causes none of the B.M.B.C. boats put in an appearance for the Relay Race between teams representing the two clubs, and a handicap for hydroplanes was arranged in its place, "Pixie II," "Columbine," and "Mona" were the starters but the first named gave up and the race finished in favour of "Columbine."

The last event was a race for boats exceeding 20 knots and a trio of the ten starters went to the post. "Columbine," "Carina," and "Rip III." Mr. J. Bird's new Saunders-Faubor 22 ft. hydroplane, with a Vauxhall engine, built to the R.M.Y.C. restricted class. As it was her first day out, and her speed was an unknown quantity, Mr. Bird declared 25 knots. It was obvious, though, she was capable of far better things, as her speed for the first round a distance of 4¼ sea miles, was at the rate of 128 secs. per mile, or 28·125 knots. She was slowed up on the second round in order to avoid exceeding her declared speed, and the result was a somewhat easy win for "Carina," with "Columbine" second.

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The racing on Saturday was brief owing to two events, that for the R.M.Y.C. restricted class, and that for the B.M.B.C. 21 footers, failing to materialise. The two races which were held included a handicap for boats exceeding 20 knots, in which "Carina" secured the silver trophy offered by Mrs. Edgar Thornton, and a sweepstake for all comers. In the latter event, which was run in a heavy downpour of rain, only five out of the dozen entrants started, but the finish was a very fine one, "Dranoel" getting the winning gun only 6 secs. in front of "Mona," while "Commander" was a good third.

A Fast American Boat.

FROM New York comes the report of a trial run with a little 20 ft. single-step hydroplane which was timed to cover a measured mile on the Mississippi River on July 5th in 67 secs., or at a speed of 54 statute miles per hour. The boat is fitted with a twelve cylinder motor of 230-h.p., and belongs to Commodore J. Stuart Blockton of the Atlantic Yacht Club. It is stated that a 26 ft. boat based on the same designs will take part in the American eliminating trials for the British International Trophy.

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CURRENT ITEMS OF INTEREST.

The Navy and Motors.

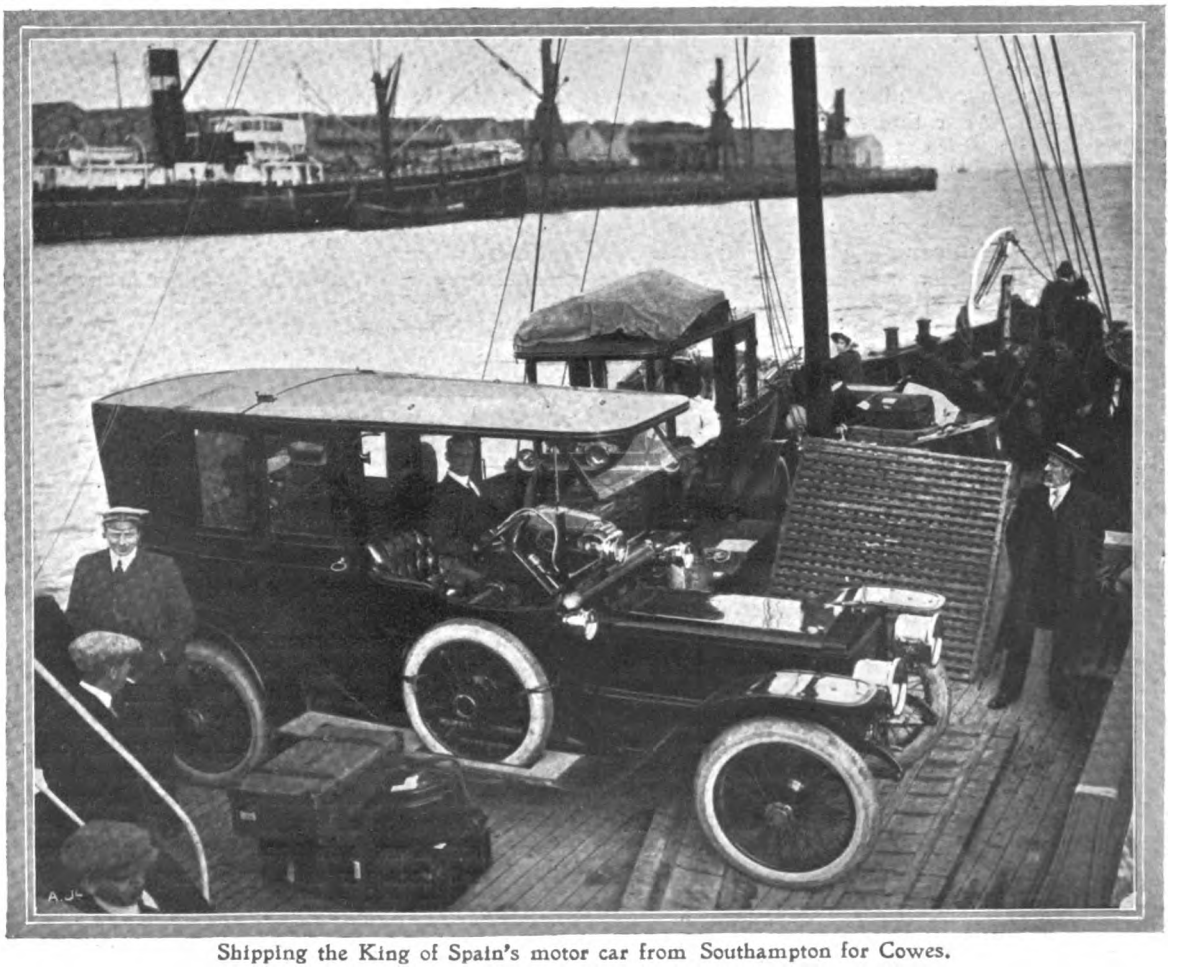
THE recently appointed Committee on Oil Fuel for the Navy have a busy time in front of them judging by the terms of reference, which are "To report on the means of supply and storage of liquid fuel in peace and war, and its applications to warship engines, whether indirectly or by internal combustion."

Motor Chapels Successful.

ACCORDING to Cardinal Bourne, speaking at the Roman Catholic Congress at Norwich last week, the motor-car chapels which have been in use in East Anglia for some time, have proved a success. By their use a good deal of good mission work has been done in small out-of-the-way places.

A Slight Inaccuracy at Finchley.

IT would appear that Councillor Royston, Chairman of the Highways Committee of the Finchley U.D.C., has never heard of the petrol tax or perhaps he thinks motor 'buses are exempt. At any rate he is reported to have said that while motor omnibus traffic largely increased the cost of maintaining the roads "no contribution was forthcoming from it, whereas it was incumbent upon the tramway company not only to lay the track but to keep it in good condition. Omnibus companies should be compelled to pay towards the cost of maintaining the roads which they used." He is going to ask his Council to ask the Middlesex C.C. to convene a meeting of local authorities to consider the matter.



Shipping the King of Spain's motor car from Southampton for Cowes.

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Dutchmen Beat English Riders.

IN a match between teams of eighteen motor cyclists representing Great Britain and Holland, held over a course of 160 miles in the neighbourhood of Amsterdam on Monday last, the Dutchmen secured a win by a small margin. A return match is to be held in England next year.

An Argyll Improvement.

IN the construction of sleeve-valve engines, the makers of Argyll cars have effected another advance. Hitherto it has been looked upon as a necessity for the combustion-chamber to be sealed by means of a powerful junk ring, but in the latest Argyll cars this ring is dispensed with; as a result of this improvement the engine develops a higher power. It was with an engine of this type that a record was made at Brooklands the other day.

Proposed Tramway in Edgware Road.

HAVING agreed to a recommendation for the widening of Edgware Road with a view to the construction of tramway lines from Marble Arch to Cricklewood, the L.C.C. has great hopes that Parliament will sanction the new scheme for the trams. Naturally at the meeting at which this was discussed, the Paddington Borough Council came in for a deal of hard words for daring to withhold their sanction to the scheme.

The Austin Advocate.

ANOTHER excellently produced number of the Austin Advocate has been issued from the "Longbridge Press" and contains among other articles a clever little tale in simple rhyme by Gordon Macleod and illustrated by Ernest Noble, which constitutes a very acceptable light relief to the machine shop operations that precede it and an able article on repairs that comes later. One way and another, Austin car owners may be said to get more than good value for their money; in fact, we are inclined to think that if some of those to whom it is sent *gratis* each month were asked to pay the price per copy that it costs to produce, they would experience a singular rise in their powers of appreciation of the cost of this style of journalism.

"Brummagem" Needs Another Index-Mark.

THE steadily increasing number of motor vehicles being registered in the county borough of Birmingham has necessitated the use of a second index-mark, and the Local Government Board has assigned the letters OA. The original index-mark was O.

Road Traffic at Godalming.

AT a L.G.B. inquiry held at Godalming last week, relative to the Town Council's proposal to borrow £5,000 for repairing the main streets, the borough surveyor (Mr. J. H. Norris) stated that the traffic through High Street during twelve hours on the previous day included 574 motor cars, 507 horsed trade vehicles, 27 motor trade vehicles, 69 motor bicycles, and 1,663 ordinary bicycles.

A Trap for Policemen.

A NOVEL feature was included in a carnival recently held at Stroud, where the rider of a B.S.A. motor cycle had erected a large cage-trap over his side-car. The flap bore the words, "Police trap for motorists," a "policeman" was seated inside, and above was the legend, "Caught in his own trap."

CORRESPONDENCE.

Sir,—I am astounded to see the statement by your contributor Victor Hart, in current issue—that, in the case of the Triumph and Rudge machines used for the silencer tests, the "clatter," *i.e.*, from the valve gear, could be heard distinctly 200 yards away. Even had your contributor said 200 feet, I should have contested the statement. There are machines with considerably noisier gearing for valves, &c., and even they cannot be heard at anything like 200 yards, when travelling at 20 m.p.h., or any other speed. I was present throughout the tests in question, and speak with some knowledge of the subject. I may add I am not connected with either of the machines named.

Wandsworth. J. W. G. BROOKER.

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NEW COMPANIES REGISTERED.

Aldershot and District Traction Co., Ltd., Halimote Garage, Halimote Road, Aldershot, Hants.—Capital £15,000, in £1 shares. Motor car, omnibus, van, and cab proprietors, &c., and acquiring the undertaking of the Aldershot and Farnborough Motor Omnibus Co., Ltd. First directors, W. E. Foster, T. M. Foster, W. S. Wreathall, and S. E. Garcke.

London General Omnibus Co., Ltd., Electric Railway House, Broadway, Westminster.—Capital £1,250,000, in £10 shares. Taking over as a going concern the undertaking of the London General Omnibus Co., Ltd. (incorporated in 1858). First directors, Charles J. Cater-Scott, Henry A. Vernet, H. W. Brown, Lieut.-Col. Sir Herbert Jekyll, K.C.M.G., Lieut.-Col. Charles F. Colvile, William C. Burton, A. M. H. Walrond, Sir Thomas D. Pile, Bart., D. Duff, and A. H. Stanley.

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PUBLICATIONS RECEIVED.

Volamekum. Handbuch fur Luftfahrer. By Ansbert Vorreiter and Hans Boykow. Munich: J. F. Lehmann. Price 4 marks.

Catalogue.

Mann Monoplanes, 1912. Mann and Grimmer, Arlington Road, Surbiton.

The Passes of the Pyrenees. By C. L. Freeston, F.R.G.S. London: Kegan Paul, Trench, Trubner and Co., Ltd. Price 10*s.* 6*d.* net.

Ordnance Survey Map. England: Worcester and Malvern District. Scale 1 in. to the mile. London: T. Fisher Unwin. Price 1*s.* 6*d.* net.

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ROUNDABOUT NOTES.

THE Stern Sonneborn Oil Co., Ltd., have just published a little booklet which is of more than usual interest as it deals with a testing machine which they have produced. By means of this the comparative values of lubricating and cylinder oils and greases can be established under actual working conditions at the actual temperature and pressure the lubricants undergo in actual use.

"WHERE Speed is Essential" is the title of a practical folder just got out by the Deasy Motor Car Manufacturing Co., Ltd., in the interests of the Siddeley-Deasy Motor Ambulance, one of which has been in use by the Leicester Corporation Fire Brigade for some months.

PROBABLY the R.A.C. has never supervised a more interesting trial than that which the 15-h.p. Colonial Napier recently underwent on the South Downs. The trial not only demonstrated the quality of the car, but it also showed what the tyres—which were Dunlops—were capable of standing up against.

MESSRS. JARROTT, LTD., 35, Sackville Street, report very good business in Rolls-Royce cars. They have also supplied three Benz cars, as well as a large number of other cars. They point out that this year there is a distinct preference for cars of more powerful type than was the case last year. The 103 cars ordered through them since January 1st have totalled 2,315-h.p., giving an average of over 22-h.p. This is interesting in view of the fact that Messrs. Jarrott are dealing with every make and size of chassis.

A REMARKABLE amount of public interest was aroused by the recent R.A.C. trial of the Cadillac self-starting system. The number of congratulatory letters received by Messrs. F. S. Bennett, Ltd., as well as the numerous callers at Cadillac Corner to see the system in operation, have shown the firm that motorists are realising that "cranking" is unnecessary and obsolete. For their part in demonstrating this no one will grudge Messrs. F. S. Bennett the success they have merited.

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A USEFUL booklet has just been published by the Goodyear Co., Dudley, regarding their detachable wheels, which can be had in wood, wire, and steel, and which, it will be remembered, were used by the team of Sunbeam cars, which were victorious in the Coupe de *l'Auto* race. The booklet gives full particulars of the construction of the different types, and also the prices, &c., and other details.

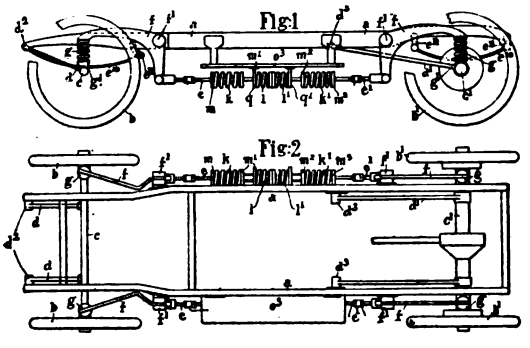
VAN DEN PLAS body work has always enjoyed a reputation second to none for comfort, endurance, and handsome appearance. A striking testimony of the latter is afforded by the results of the "Concours d'Elegance de Schootenhof" (Belgium). There were seven classes in the competition, and the first prize in six of them was awarded to Van den Plas carriage work, for which the sole agents are Messrs. Metallurgique, Ltd., 110, High Street, Manchester Square, W.

ONE of the most important problems the motorist has to face is mileage per gallon of petrol. Mr. Arthur E. Taylor of "Blair Athole," Bath, in a letter to the Stewart Precision Carburettor Co., states that he recently fitted his 12-16-h.p. car with a Stewart precision carburettor, and that on a run of 180 miles it gave him 34·8 miles to the gallon. He goes on to say that with a small adjustment it would be possible to obtain 36 miles to the gallon. As with his former carburettor he could only obtain 17 to 18 miles per gallon, the result speaks well for the Stewart precision carburettor.

AT the Stockport and District Motor Club's Climb *Fast* and *Slow*, at Axe Edge, Buxton, on July 21st, the Levis two-stroke again got first, using Avon tyres. The mileage covered by these same Avon tyres up to date, including all competitions, is: front, over 6,000 miles; back, over 3,000 miles.

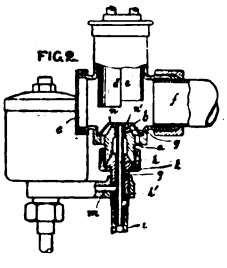
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15,590. July 4th, 1911. Improvements in Vehicular Construction, Mainly for Absorbing or Reducing Road Shocks and the like. J. J. Charley, Malvern Road, Malvern, Victoria, Australia.—This invention relates to improvements applicable to automobiles, tractors, or railway vehicles, to minimise shocks received from road or track inequalities, and to increase the comfort of the occupants of the vehicle. The invention lends itself to use with cars which will largely remain of modern types of construction, but their ordinary shock-reduction or suspension-springs of the chassis or carriage will not be required. Each rocker or bell-crank is pivotally supported on a transverse shaft or on any suitable stud or boss arranged to project from the chassis. Any rocker or wheel carrying-arm is of curved, bent, or other suitable form,



as desired, to allow of road-wheel steering play. Fig. 1 is a side elevation of the chassis of a motor vehicle. Fig. 2 is a plan; *a* is the frame of the vehicles, and *b* and b^1 the front and rear running-wheels, respectively, each pair of which is mounted on a transverse through axle, *c*, c^1, of ordinary construction, said axles being mounted in arms or radius-rods, *d*, d^1, pivoted to the frame at d^2, d^3, respectively. To prevent undue torsion on the axle carrying arms, *d*, d^1, and excessive transverse play between the frame and axles during running of the vehicle, there are provided additional supports or connections, e^{10}, which may be in the form of springs attached centrally to the axle, and at each end to the frame, as by links or shackles, e^{11}. To each road-wheel there is applied a rocking-lever, *f*, pivoted on a stud, f^1, projecting from the frame, *a*, and each having one end mounted on or adapted to be acted on by a spring, *g*, bearing directly upon a flattened portion, g^1, of the axle. The other end of the rocker is downwardly bent, the lower end of each forward rocker being jointed to a connecting-rod, *e*, which carries two outer springs, *k*, k^1, and two inner springs, *l*, l^1, the latter bearing against stop-plates, *q*, q^1, fixed as to the foot-board, o^3, also outer abutment or buffer-plates, *m*, m^3, and inner abutment-plates, m^1, m^2. The springs are housed within a casing covered by and fixed to the foot-board, o^3. Springs, *l*, l^1, are called normalising springs, and *k*, k^1, supporting and flexibility springs. The springs are set so that the rocker-rods, *e*, e^1, pull the bases of pivoted rockers, *f*, so that the rocker-rods at their heads or upper ends compress the springs, *g*.—July 10th, 1912.

14,642. June 21st, 1911. Improvements in and relating to Carburettors for Internal-Combustion Engines. H. C. Newman, The Elms, Gravelly Hill, Erdington, near Birmingham.—This invention has reference to carburettors for internal-combustion engines and is mainly directed to the problem of providing an efficient carburation system for use in connection with high-compression racing and particularly motor-cycle engines. It is proposed in connection with internal-combustion engines to improve the carburation by an application of the principle of "forced induction" whereby air is forced from the engine crank-case through a pipe or conduit connecting with the carburettor, and is discharged at a point close to the nozzle of the said jet by passing the said air either up the centre of the jet, or around the outside of the said jet, or across the end thereof. The forced induction system supplements the action of the engine and compensates for the reduced suction effect which is incidental to the use of large choke-tubes, improved carburation, and consequently higher engine power may be obtained, whilst any tendency to overheating in the engine is obviated. Fig. 2 is a part section. The carburettor comprises the usual bottom air-inlet ports, *a*, surrounding the nozzle, *b*, and the extra air-port, *c*, with its hand-controlled regulating slide, *d*, also the ordinary hand-controlled throttle slide, *e*, for regulating the admission of mixture to the induction pipe, *f*, of the engine. The carburettor has the petrol supply passage, *g*, enlarged right through from the top of the nozzle to the lower end, and by fitting within the passage, *g*, a central air-feed tube, *h*, whose upper end terminates flush with the top of the nozzle, whilst its lower end extends through to the outside of the carburettor for the attachment of an air-supply pipe, *i*, which is in communication with the engine crank-case. In order to get air as free from oil as possible, the air-pipe, *i*, is connected on to the box, *m*, which contains the valve timing gear of the engine and into which air is forced from the interior of the crank-case during each downward stroke of the engine piston. This provides for the delivery of air under pressure into and through the tube, *h*, during each induction and firing stroke. The supply-pipe, *i*, is fitted with a small stop-cock, whereby the pressure air-feed may be readily put into and out of action at will, whilst a ball or other non-return valve may be arranged to automatically close the communication between the carburettor and the crank-case during the compression and exhaust strokes of the piston. The central air-tube is connected by a screw connection, h^1, so that it can be readily unfastened and withdrawn when necessary, but when in position, it is surrounded by an annular petrol feed passage, *k*, leading from the float chamber petrol-way, *m*, to the nozzle. And to regulate the flow and consumption of petrol and to effect its atomisation during its induction from the passage, *k*, into the vaporising chamber, the upper end of the central air-tube is formed with a collar or ring, *n*, which is a tight fit within the outlet of the enlarged nozzle aperture, and has a series of vertical slots or fuel-ways, n^1, cut in its outer periphery.—July 10th, 1912.



Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = interna combustion; m = motors.

Applied for in 1911.

Published August 8th, 1912.

16,478. A. NICHOLSON. Spare petrol tin carrier.
16,486. A. SUTHERLAND. Horn for use with I.C. engines.
17,094. L. M. DIETERICH. Friction-gearing.
18,229. A. F. SADOUX. Suspension of motor on chassis.
20,091. A. KENLEY. Hoods.
20,403. J. G. NEWMAN. Ignition for gas- and oil-engines.
21,441. A. H. MIDGLEY AND C. A. VANDERVELL. Electric ignition.
21,921. E. K. BAKER. Detachable rims.
24,061. E. B. LUDLOW. Preventing over-heating of valves.
25,291. D. J. SWEETZER. Valve gear.
25,487. F. A. AND J. J. MENVILLE. Starting device.
28,394. G. A. BISHOP. Wheel arrangements for motor cars.

Applied for in 1912.

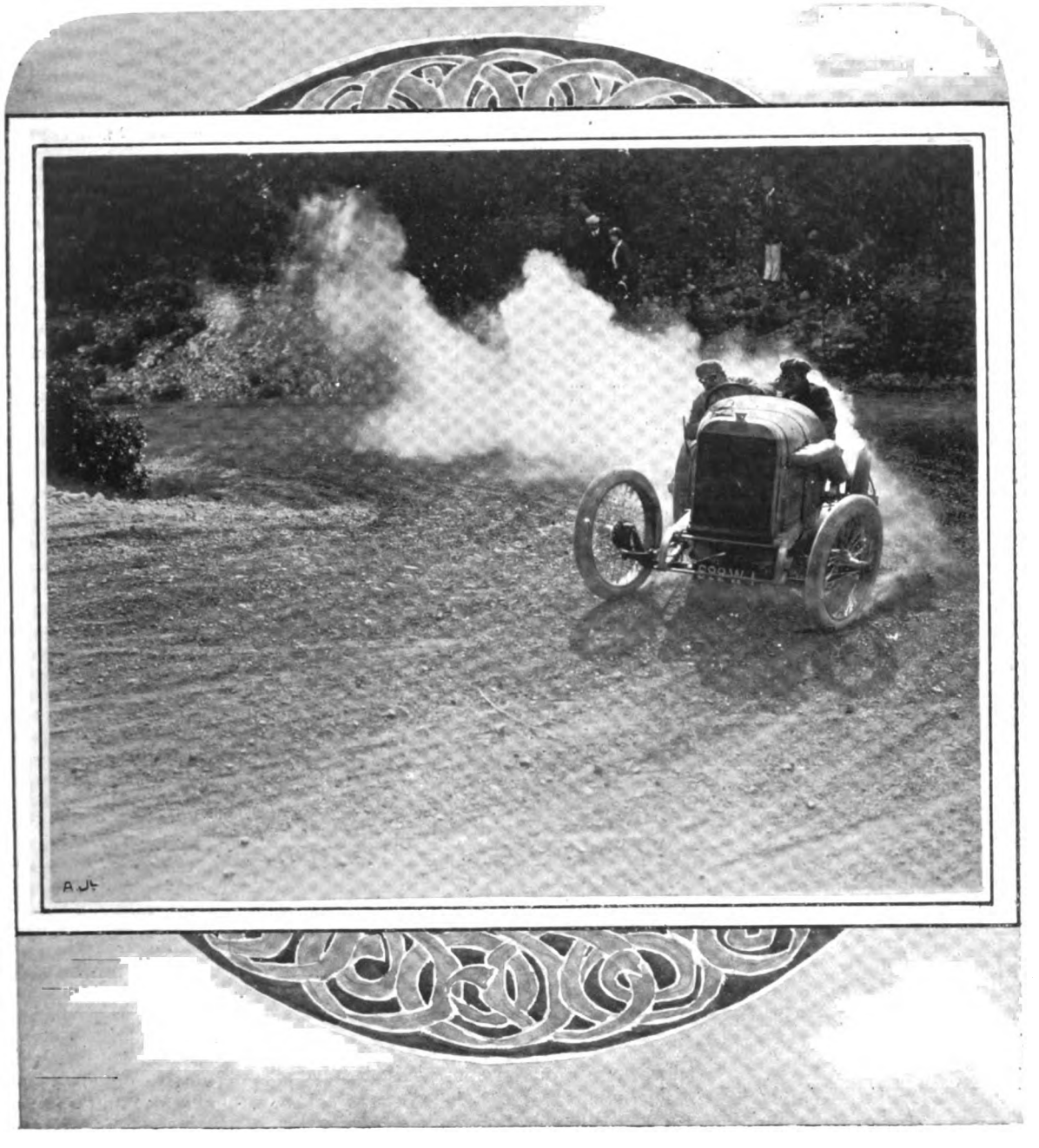
Published August 8th, 1912.

1,828. F. V. WYTHES AND HALL SPARE MOTOR WHEEL, LTD. Attachment of spare rims.
6,121. J. LE PLAIN. Direction indicators.
6,273. F. A. VON SCHMIDT. Two-stroke cycle I.C. engines.
6,740. T. CHRISTOPHERSON. Tyres.
7,588. C. M. COSSET. Detachable rims.
9,526. GEB. SULZER. Valve gears.
14,314. H. LENTZ. Hydraulic gear for motor cars.

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The AUTO
-MOTOR JOURNAL
The Motorist's Journal and Directory.

No. 606. (No. 33, Vol. XVII.) AUGUST 17, 1912. [Weekly, Price 3d. Post Free, 3½d.



UP MONT VENTOUX.—Boillot, who was first in the general classing, taking one of the sharp bends on his victorious Peugeot.

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The AUTO MOTOR JOURNAL. (YELLOW COVER).

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.
Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.
All letters should be addressed to the Editor.

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Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.
Small corrections can be accepted up to 6 p.m. on Tuesday.
All communications must be addressed to the Manager.

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Passing Events

The Petrol Committee's Report.

The Petrol Committee, which is sitting at the R.A.C., has issued a voluminous interim Report of its proceedings, and an exceedingly interesting document it is. From it we gather that five meetings of the Committee have been held to date, and five witnesses, conversant with various phases of the subject, attended before the Committee and were examined, while in addition the Committee has inspected the petrol storage installations at Thames Haven and Purfleet. The activities of the Committee, according to the wording of the Report, have up to the present been mainly spent in investigating the methods of handling petrol in this country, beginning with its importation, following with its storage and transport, and ending with its distribution to the consumer, together with the various regulations now in force appertaining thereto. Still quoting from the Report, the Committee has not been able to thoroughly investigate all questions connected with its inquiry, and consequently is not in a position to issue any comprehensive recommendations upon the subject. In view of the complaints that are being made, however, that the regulations for the reception and transport of petrol in London are out of date, and tend to hamper the free and unrestricted supply of the spirit to consumers at normal prices at all times, the Committee has found it desirable to issue a recommendation upon this point, and the following resolution has been passed and forwarded to the Port of London Authority:—

"That the Petrol Committee recommends that, in order to improve the present method of conveying petrol from Thames Haven by water, barges propelled by internal combustion Diesel, or equivalent type, engines capable of carrying 1,000 tons of petrol, be allowed to navigate the Thames as far up as is practicable."

From the information at present before the Committee, it would appear that if the Port of London Authority will grant permission for the transport of 1,000 tons of petrol in single consignments up the river, the facilities for local storage will be improved, and the possibility of a shortage in the near future owing to labour troubles and similar disturbances will be much reduced. So much for what may be termed the constructive work of the Committee, and we now come to the consideration of the negative results achieved.

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No Cheaper Petrol.

As our readers are well aware, the Committee was formed as a direct consequence of the increase in the price of petrol, both normal and abnormal. The first has been gradual and steady, and has caused much misgiving within the ranks of the motorist consumer. The second was a direct result of the London Transport Workers' Strike, and it was this last cause that really brought matters to a head, and led to the calling of the conference at which it was decided to form the Petrol Committee. Naturally, the principal reference to the committee was the matter of price, present and future, and its main business was to discover whether or not any way could be devised to keep our fuel supplies at something like a constant and reasonable level. So far as that part of its mission is concerned, we may say at once that the only result of the Committee's investigations has been to indicate once and for all that so far from there being any probability at all of a reduction in price the chances are all the other way. The first witness called by the Committee was Mr. Richard Airey, of the British Petroleum Co., who put an effectual damper on any hope that might have previously existed that there is the least likelihood of a fall in prices. Let us see what he told the Committee, *apropos* the price question. It was put to him by Mr. Joynson-Hicks whether he could or could not help the Committee

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in their desire to buy petrol at a cheaper rate than at present subsisting. His reply was: "No. I think you get your petrol cheap enough." Again, replying to Mr. Edge's suppositionary case of everybody wanting to use the second-grade spirit, he said: "our plan would then be to put up the second-grade spirit." Certainly there is no beating about the bush in these replies, and whatever may be thought of the morality of trust methods we do at least think that the motorist is indebted to Mr. Airey for having made the position thus clear. The trust view has been clearly stated, both by Sir Marcus Samuel and again by Mr. Airey, viz., the effective price of a commodity is what it will fetch in the open market. That is quite an elementary business proposition and however much the motorist may dislike it its meaning is particularly clear—petrol we must have, and as the world's supply is vested in a very limited number of hands, we shall pay for it just as much or as little as those controlling it think they can get from us. That is the plain English of it.

◆ ◆ ◆

Co-operation no Remedy.

During the height of the discussion of the price problem, it was seriously put forward in many quarters that the real remedy was a huge motorists' co-operative association, able to buy by the million gallons, and to undertake the distribution to its members. Alternatively, it was suggested that instead of wasting (?) their money on Touring Guides and Road Patrols, the R.A.C. and the A.A. should, separately or in combination, set up in business as wholesale dealers in petrol for the benefit of their members. It was pointed out that nothing in the world would be easier than for these two wealthy and powerful associations to break up the existing rings which control the supply of motor fuel, if only they would set to work in the right way. On the other hand, people who saw a little farther made the point that even supposing either of the two alternatives to be adopted, the trusts would still have the last word. Either they could refuse to supply at all, or, having landed the new organisation with any number of millions of gallons of petrol at a price, they could start a campaign of underselling which would break down the opposition in three months. Once more we are indebted to Mr. Airey for setting the motoring world right upon an essential point. Let us quote from the minutes of evidence which deal with the point at issue. Mr. Joynson-Hicks was the questioner, and he put it as follows:

"May I take it from you that supposing a large number of private consumers were to affiliate together that you would sell them 5 million gallons a year at wholesale prices?—No. You may take it that we would support the dealer. There would be no possibility, then, of consumers getting petrol from existing sources of supply at wholesale prices?—No. I can answer for my own Company and say no."

Later on in the examination it was again put to Mr. Airey in this form:

"Such a thing as a motorists' co-operative association you probably would not sell to?—I should like to say at once, 'No.' We would certainly not favour such a thing at all."

At a subsequent sitting of the Committee the same thing was put to Mr. Powell, of the Anglo-American Oil Co., and, while he was less uncompromising in his language, what he said amounted to the same thing. Therefore we may take it as being absolutely settled that unless some new and unlooked-for sources of supply are opened out, the co-operative idea is entirely outside the bounds of practical politics. The point at which we seem to have arrived in the deliberations of the Committee is the one put to them in plain words by Mr. Airey—that they are wasting their time in a vain hope of getting a lower price.

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Cheaper Distribution no Help.

Another point which has been made amply clear is that, while the petrol companies are only too willing and anxious to make use of any assistance the committee can give them in the securing of better facilities for transport and storage, which would of necessity tend to lower the costs of distribution, the companies on their side are quite brutally frank in their statement that any saving which might result would go into their pockets, and not into those of the consumer. The line taken by the companies—and it must be admitted that the argument seems on the face of it to be a sound one—is that so far as internal distribution is concerned, the possible saving on transport and storage which would result from a relaxation of the present regulations which militate against easy distribution, would be so small when calculated upon a per gallon basis that it could make no difference in cost to the consumer. The only ray of hope seems to lie in the direction of better ocean transport facilities. According to Mr. Powell, eighteen months ago the freight across the Atlantic by tank steamer was only fifteen shillings per ton, whereas now it is as high as sixty shillings. The solution here seems to lie in increased tonnage, and as the same authority informed the Committee that there were over fifty additional tank steamers building now, it would appear that that extra tonnage will soon be available. Even then, if the indications are to be trusted, it is very much to be feared that a fall in freight rates will only benefit the monopolists, while the motorist will still be mulct in top prices for his fuel.

At present the Committee has not touched upon the question of an alternative to petrol, but later on it is pretty certain that this important point will receive the attention it warrants. At the moment the only possible alternative is, as we have often pointed out, vegetable alcohol, and it is in connection with the problems affecting its manufacture and use that we fancy the Committee's best work will be done. At the same time, it is no use building too much on this aspect of the fuel question. There are many and varied difficulties to be overcome before alcohol as a substitute for petrol can even come into sight. There is the technical difficulty of adapting our motors to its use to be dealt with. Beyond that is the restrictive legislation governing its production and sale which stands in the way of its commercial possibility. None of the difficulties are, however, insuperable, but there is a long road to be travelled before we can say to the petrol companies that they must either bring down their prices

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to a fair commercial level or be threatened with a disuse of their commodity—and in the meantime they will have taken full advantage of the sunshine and have made much hay. In conclusion, although, as we have already said, the work accomplished by the Petrol Committee has been mainly of a negative character it has nevertheless been valuable work if only because it has shown us exactly where we stand *vis-à-vis* the petroleum trusts, and the gentlemen composing it have laid the motoring community under a heavy debt for the time and thought they have given to this vital question of fuel supply.

The Dunlop Amalgamation Scheme.

It was inevitable that sooner or later some modification should be made in the manner of organisation of the Dunlop undertaking. Ever since it became a business it has been carried on under disadvantages which are numerous and serious. There have been two large companies—one a manufacturing company and the other a selling company—dividing what should really be a single business into two separate and distinct undertakings, necessitating two organisations where one should suffice, and dividing responsibilities and profits which should be self-contained. These arguments we take from the explanatory circular which has been sent out to the shareholders in the Tyre Co., because they seem to fit the case so eminently well that it would be impossible to better the statement of the case in any other words. What it is proposed by the joint directorate to do is to effect a fusion of interests by the Dunlop Rubber Co. taking over the tyre company as it stands. In return for the handing over of the latter undertaking, the Rubber Co. proposes to pay the sum of £1,126,790 13*s.* 10*d.* as consideration, made up as to £305,600 by the redemption in due course of the outstanding debentures of the Tyre Co., and the payment in the meantime of the interest thereon; as to a further £497,932 7*s.* 7*d.* by the discharge by the Rubber Co. of the Tyre Co.'s liabilities; and the balance of £323,258 6*s.* 3*d.* in cash, this sum to be set aside by the Tyre Co. to discharge the obligation on its part assumed under the agreement to apply for 129,303 ordinary shares in the Rubber Co. of £1 each at £2 10*s.* per share. A further consideration to the Tyre Co. for its goodwill, trade marks and designs will, if the proposals are approved by the shareholders, be a royalty in perpetuity of 6 per cent. on the net profits made by the Rubber Co., whether derived from sources to which the goodwill and trade marks are applicable or from other independent sources, excepting in the current year the profit accruing from the premium on the shares noted as to be purchased by the Tyre Co. In their report to the shareholders in the Tyre Co., the directors state that they are satisfied that the consideration to be given is fair and reasonable, and that the scheme is one which they can recommend as being in the best interests of the shareholders. Further, it is pointed out that the Tyre Co. is relieved of all responsibility with regard to the ultimate redemption of debentures and the present payment of debenture interest; a royalty is received in perpetuity from the Rubber Co., constituting a new source of income; the Tyre Co.'s assets will be capitalised in the Rubber Co., providing a new source of income by way of dividends, and securing to the Tyre Co. nearly three-fourths of the ordinary capital of the Rubber Co.; the Tyre Co. can make no trading losses; and it will no longer be necessary to retain profits for working capital, while the administration expenses will be reduced to a nominal figure, so that practically all income will be available for distribution.

We do not suppose that so drastic a scheme will pass without a good deal of discussion by shareholders, who will certainly think that better terms might have been made. But, viewing the position in the light of the past history of the two companies, we are inclined to agree with the Tyre Co.'s directors that the scheme is the best that can be devised under the circumstances.

A Paraffin Race?

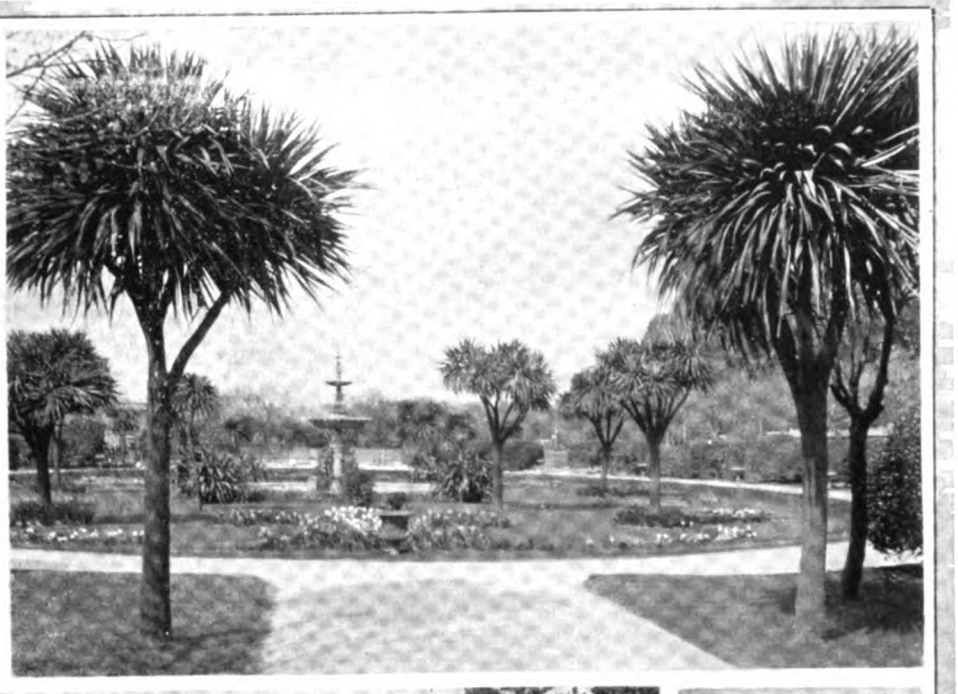
With the fuel question literally a burning topic of discussion, the suggestion for a race confined to cars using paraffin, which is contained in a letter from Mr. Charles Jarrott published in our correspondence columns, is singularly apropos. In fact, we do not think that a better suggestion could have been made at the present juncture. Racing has been resting under a cloud for three or four years now, and the section which opposes it does so mainly on the ground that there are no useful lessons to be learnt from it nowadays. We have dealt with this aspect of the question times without number, so there is little use in going over the pros and cons again unless some new arguments can be adduced on one side or the other. Certainly Mr. Jarrott has succeeded in bringing forward a new and convincing argument in favour of reviving the game, and, now that recent happenings have invested racing with something of a new interest, and there is, at least, a probability of the powers that be looking kindly upon a revival, the basis he puts forward is certainly worth the fullest consideration.

In the light of the report of the Petrol Committee, which we have already dealt with at considerable length, it is very obvious that we simply *must* look for an alternative to petrol, and, on the face of things, the most natural substitute would seem to be paraffin. But in the use of the heavier product there are certain difficulties involved, which have never been successfully overcome. In part the reason for this is, we think, that there has never been a sufficient awakening of public interest in the possibilities of paraffin to make it worth the while of the inventor or the motor engineer to treat the problem of paraffin carburation with the perseverance its solution implies. Now, if Mr. Jarrott's suggestion should meet with the consideration it deserves, and if such a race should result, it cannot be doubted that it will concentrate the attention of the public, and the inventor alike, upon the possibilities of the heavy fuels. Indeed, the proposition is so self-evident that it scarcely needs arguing. It is up to the R.A.C. and the S.M.M.T. to give the very fullest consideration to the possibilities of the suggestion, which we regard as being an exceedingly valuable one, especially coming, as it does, at a time like the present.

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WITH THE CAMERA AND THE CAR.

THE PALM GARDENS AT TORQUAY





The celebrated Palm Walk at Torquay—one of the warmest resorts in South Devon—where palms and other plants of the kind grow out of doors in profusion. Torquay is a delightful winter resort for motorists.

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THE CANADIAN HIGHWAY.



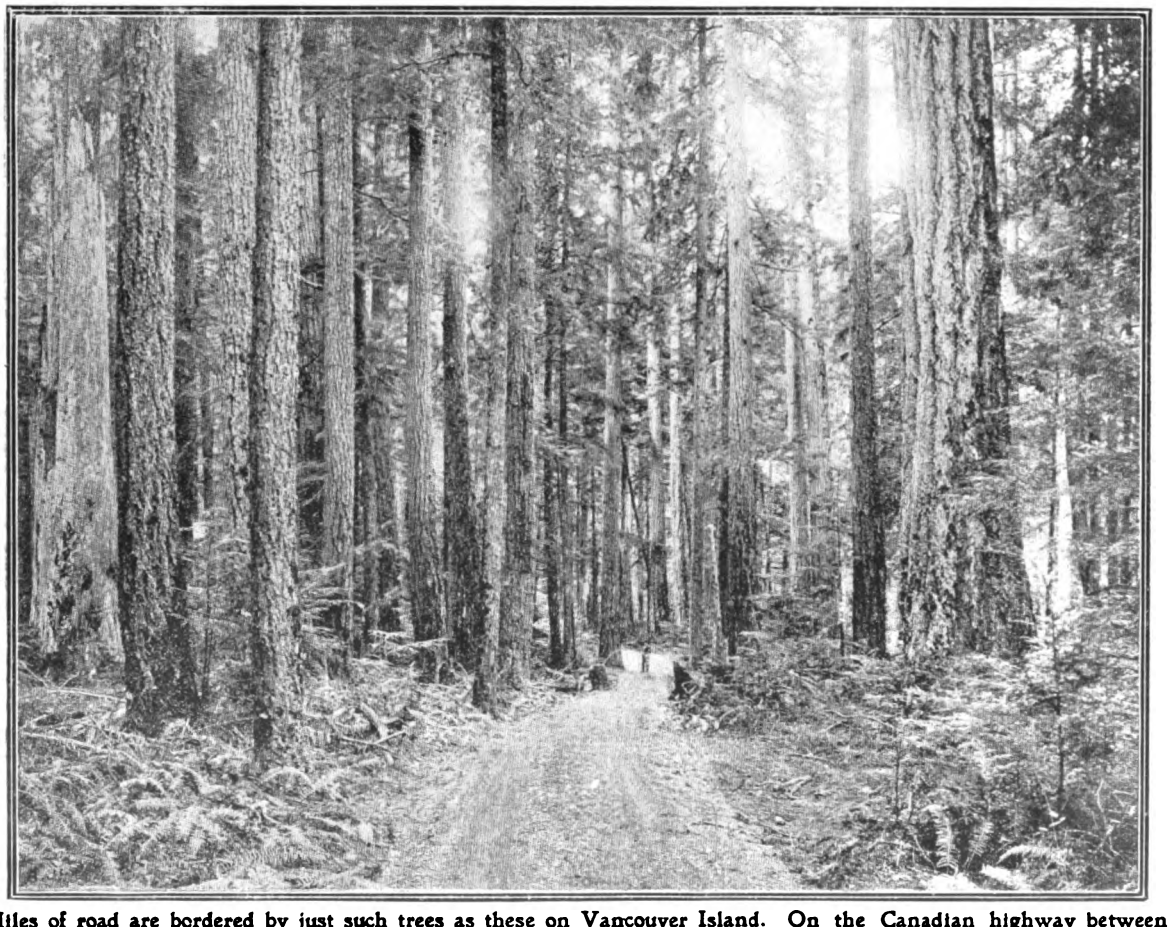
The First Direction Post.

UNDER the patronage of H.R.H. The Duke of Connaught, there is an association in Canada, known as the Canadian Highway Association, that has in hand one of the biggest projects—perhaps the biggest project, regarded from a financial point of view—ever undertaken by any concern that might be said to have a direct interest in motoring. This is no less than the building of a 4,000 mile highway right across Canada from Halifax to Alberni, and although the affair is national, nevertheless the ever growing use of the automobile gives one just cause to regard the Association in question as essentially a motoring institution. Even here in England, where most of our roads cause the average Canadian to "take off his hat," we have all along preached the principle that the motor problem is a road problem. How much more so, then, is this true of a country like Canada, which is only developed in parts.



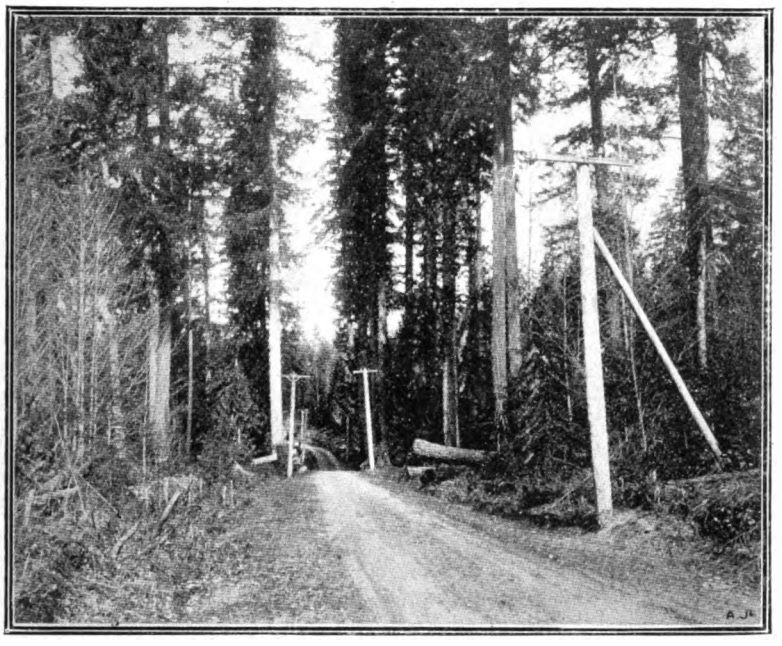
The scene at the planting of the first post of the Canadian highway at Alberni, B.C.

Naturally the construction of this trans-continental road is not wholly pioneer work, many of the cities and towns through which it passes, or is intended to pass, having highways that are as good as anyone could wish. In



Miles of road are bordered by just such trees as these on Vancouver Island. On the Canadian highway between Nanaimo and Alberni, B.C.

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A dip in one of the Vancouver Island roads, a few miles from Nanaimo.

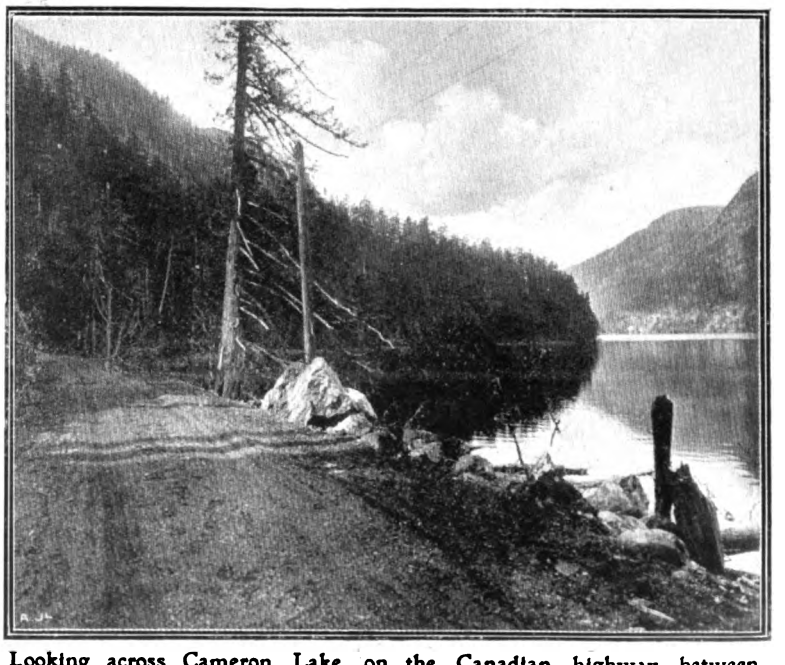
Canada, however, distances are on such a vast scale that any English motorist who is untravelled abroad can have absolutely no conception of their meaning and, moreover, the country itself, through which a great part of this track must be pushed, is virtually virgin forest.

Five years is the period within which the enthusiastic officials of the C.H.A. hope to complete their task, and inasmuch as the good work may be carried on at many places at once let us hope that so short a time may, nevertheless, prove adequate to such a gigantic production. That it is a worthy project there can be no shadow of doubt, nor can there be any question that its value to the country will be immense. From an international point of view, we venture to regard the building of such a road as an achievement that will be of no mean significance in the future history of the relationship between peoples, for with the motor car spreading the desire for travel, as undoubtedly it is, the mere existence of the Canadian highway will serve to attract to the Dominion the travelling communities of all races. Many thousands of Englishmen who would not otherwise have thought of visiting Canada, will be impelled, we hope, to go there when this road is finished, because they will feel that the possibilities at the end of their long voyage will be so thoroughly worth while.

Motoring through quagmire and crevice is a specialised form of the sport that appeals to the few, but is something of a damper on the ardour of the many; so the mere knowledge that the motorist who visits Canada will be able to drive his own car in safety from one water's edge to the other, cannot fail to have the most marked influence on the position that Canada occupies in men's minds as a motoring country. And when, nowadays, we speak of a motoring country, to say nothing of the significance of the same term five years' hence, we mean a country that attracts the personal interest of every educated mind, arousing a desire therein to see at first hand those things that can only be seen by the aid of a car.

Of the natural beauties of Canada, and of its interest and importance as a rapidly-expanding and wellnigh limitless field of industry, there is no need to speak here, notwithstanding that the subject is uppermost in the British mind just now owing to the visit of the Canadian Premier and some of his ministers to our shores. It is a foregone conclusion that anyone of intelligence should be fascinated in such a land, and those who have the initial desire to see a country by motoring through it must, if they are to save themselves from being either bored or fatigued by such long journeys, bring to the assistance of their powers of appreciation a mental activity that cannot be otherwise than the seed of good for all concerned.

It is difficult, perhaps impossible, from a mere glance at the little key-map that we publish herewith to in any wise appreciate quite what wonders lie along that simple black line. For the moment, perhaps, the curiosity of names like Medicine Hat and Moose Jaw hold the attention, but a glance at some of the pictures, which we have reproduced from our interesting Canadian contemporary *The Motor Magazine*, may better serve to visualise the scenic attractions as well as some of the difficulties of the country that the great road will pass through. These photographs, by the way, were taken by Mr. E. A. Leash, the official photographer of the Canadian Highway Association. We also publish, grouped on another page, a set of snapshots taken by Mr. J. M. Walford, a well-known member of the automobile industry in Canada and incidentally the representative of the Sheffield Simplex cars. Some of his little pictures

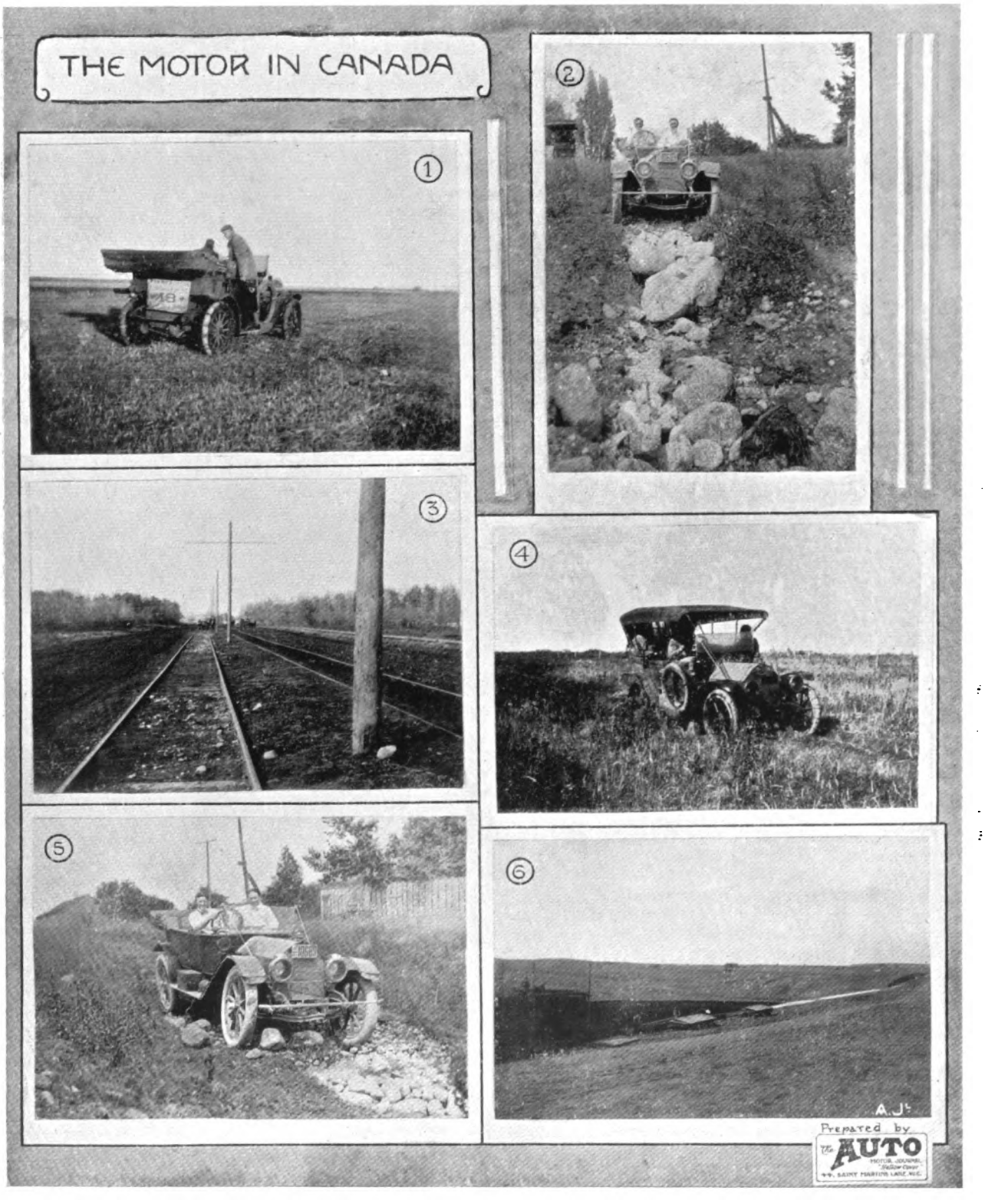


Looking across Cameron Lake, on the Canadian highway between Nanaimo and Alberni, B.C.

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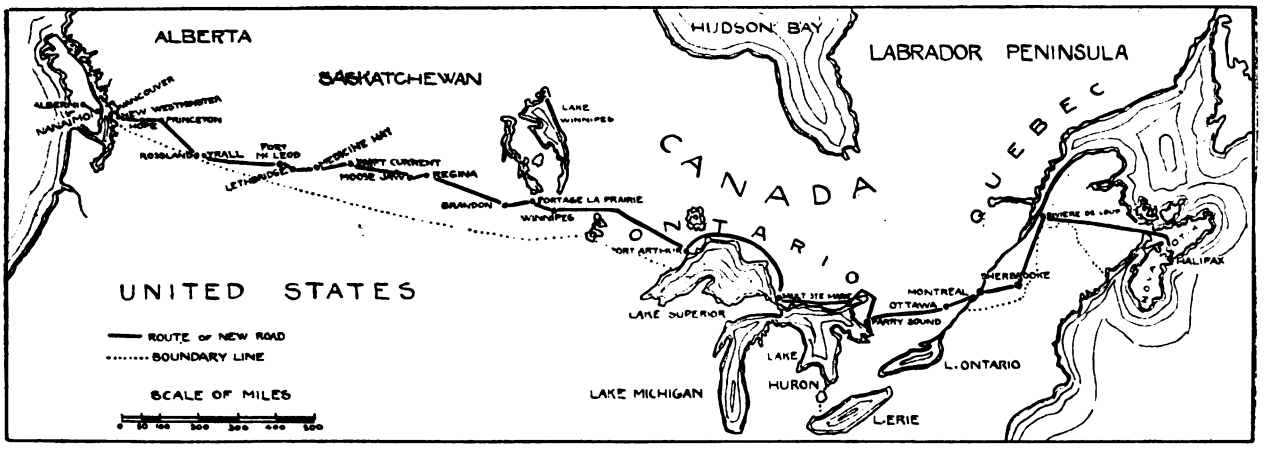
likewise show very clearly what motoring over nature's own country is like.

Just at the present time, the greatest enthusiasm over the Highway appears to be centred in British Columbia, and at Alberni, on May 4th, the president of the Association, Mr. W. J. Kerr, planted the first signpost,



Pictures sent to the AUTO. by Mr. John M. Walford, an abstract from whose letter appears on page 961. 1. A road near Winnipeg in south-west Manitoba. 2. Boulders *en route*. 3. Jaspar Avenue, Edmonton, Alta; note the projecting tramway rails, a common obstruction for the Canadian motorist. 4. A highway in Manitoba. 5. Rough going. 6. On the outskirts of Calgary, Alta.

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Key-map, based on particulars published in the Canadian "Motor Magazine," showing the proposed route of the Canadian highway, which is now under construction from Halifax to Alberni.

bearing the words: Canadian Highway, an arrow, and the letter E. That little arrow points a long way; it points to a spot 4,000 miles away, more or less, which ought, we think, to carry another post in sympathy, on which should be inscribed another little arrow, reversed, and the letter W. Halifax, the eastern terminus, was, represented on the occasion at the western ceremony, and we can well believe that the enthusiasm manifested at each end of the line will not show any sign of sagging in the middle.

If, during 1913 or 1914, King George visits Canada—and there are more things unlikely than this—it is probable that he will be asked to officially declare the western section of the highway open, probably at some spot between Vancouver and Westminster, where there is a project to build a nine-mile motor boulevard. Such an event would give great impetus to the enterprise, but in any case the work is one that those who have put their hands to it will certainly see through in good shape, and it is a scheme of which all interested may well feel proud, for, when finished, it will be an everlasting landmark to the credit of a great nation.

REVERTING to Mr. J. M. Walford's photographs, which are grouped on another page, the following paragraphs are taken from the letter by which they were accompanied, and they give very striking little word pictures of some aspects of Canadian motoring:—

"I recently made a run from Toronto to Orillia and back, a distance of about sixty-eight miles each way, and took the photographs on the road, which are a fair description of the public highways of Ontario. Loads of earth, sand and stones, are often dumped in the centre of the road, and wherever possible motorists will leave the road and make a fresh track on either side through the grass or anywhere that is better than running astride this so-called repaired highway. This is not the only need for high clearance for mud, sand and rock are other enemies of the automobile in this country. Some of the pictures give an idea of the obstructions that one meets, and some of the boulders are so large that it is necessary to stop the car and remove them before passing. To run through some of the mud and sand of the prairie provinces is far worse than climbing any hill, and it is frequently necessary to use the intermediate gear for a whole day, which, as you will realise, calls for very efficient cooling.

"These photographs were taken in a very strong sunlight, when the temperature was 100° in the shade; but a half-hour after halting for the photographs we ran into a very bad thunderstorm, such as is common here during the very hot summer months. However, we managed to run through, and arrived at Orillia, drenched to the skin, and the car had suffered little more than one broken spring and a broken hood-bow, which, you will realise, is not an exceptional occurrence when travelling over our roads.

"The public roads of Manitoba are at the present time being much improved, and before very long we shall have some highways which will be worth boasting about; but, of course, it will be a long time before all the side-roads will be put into shape. The Ontario Motor League is one of the organisations that is working for the improvement of the Canadian roads, and grants have been made by the Government; there is every prospect of improvement in the near future.

"The photograph showing the main street in Edmonton, Alberta, about one mile from the centre of the city, illustrating how the street car tracks stand their full height above the level of the road. It is necessary for vehicles to travel in the deep mud on either side, and, if it is desired to cross the road, the rails must be taken at a very sharp angle.

"As a contrast, the new graded road outside Calgary is in very good condition, but, unfortunately, as with very many other roads here, they have paid no attention to the foundations, and as soon as heavy traffic passes, this road in wet weather becomes a mass of deep ruts.

"It may interest you to know that the Canadian National Exhibition will be held in Toronto from August 24th to September 9th, and the Dominion Exhibition at Ottawa from September 5th to 16th, at both of which a building is provided for the Exhibition of automobiles and accessories."

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King Alfonso in London Showrooms.

As a very keen motorist, His Majesty King Alfonso naturally takes a very great interest in the Spanish motor car makers—the Hispano-Suiza. During his recent brief visit to London, His Majesty took occasion to pay a visit to the London showrooms of the concessionaires, Messrs. W. G. Brown and Co., in Shaftesbury Avenue. He spent quite a little time examining the models on view and chatting with the directors concerning his motoring experiences.

Night Shelters for Commercial Motors.

WE understand that good progress is being made by the Commercial Motor Users' Association in the scheme for the organisation of night shelter accommodation for commercial vehicles. It is hoped to publish the first list of recognised depôts shortly, but in the meantime anyone interested is requested to communicate with the hon. sec., Mr. F. G. Bristow, 89, Pall Mall, S.W.

Progressive Venezuela.

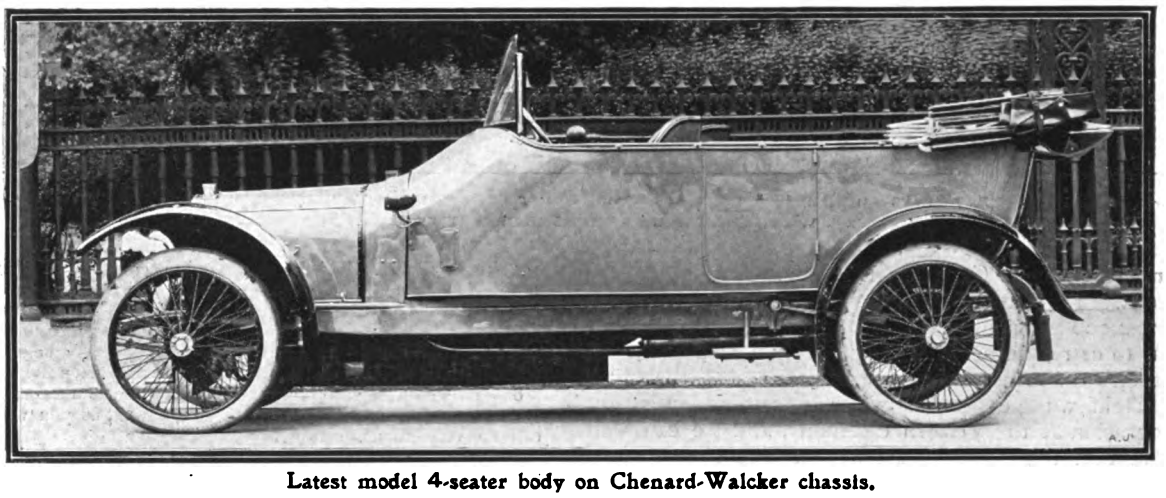
EVIDENTLY the motor vehicle is being found very useful for opening up the outlying parts of Venezuela, as concessions are continually being granted for the establishment of motor vehicle services between various points, and the Government encourages the movement by permitting the necessary material, for establishing and carrying on the services to be imported free of cost.

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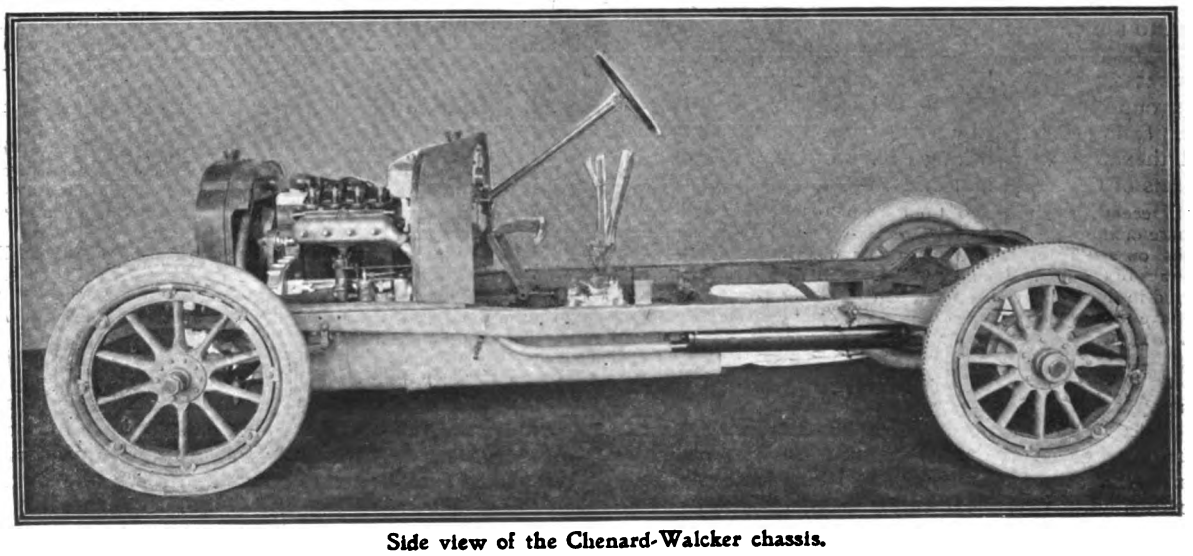
THE 16-20-H.P. CHENARD-WALCKER CHASSIS.

BEFORE going into the details of this chassis let us first say that it is a worthy successor to those older Chenard-Walcker models that have in the past years built up a very fine reputation for durability, reliability, and low cost of upkeep. It is a high grade chassis in every sense of the word, and when this is taken fully into consideration it should surprise many of our readers, as, in fact, it has surprised us, that this chassis is sold to the public at the extremely moderate figure of £295. When examining the chassis for the purposes of this article, and in the face of this very low price, we were not satisfied with a merely external examination in the show-rooms of the company. We were keenly interested to see an engine dismantled and awaited an opportunity when one of these models, which had been delivered late last year came into the workshop to be overhauled after doing a total mileage of about 8,000; we then saw sufficient to justify the above-mentioned opinion. In the engine that we saw in pieces, nothing could be found that did not do the makers credit, what wear there was, was quite normal and very small indeed, and what impressed us most on this occasion was the really fine workmanship that has been put into these cars.

The chassis is fitted with a four-cylinder monobloc engine of the most up-to-date long-stroke type; indeed, we do not at the moment of writing recall another engine of this type that has a stroke of 150 mm. by a bore of only 80 mm. This bore brings the car into the popular 15·9-h.p. class, for which a tax of only £4 4s. has to be paid, but the actual power developed by the engine is, as can be expected, far in excess of this merely nominal R.A.C. rating. The cylinders are bolted to a crank-case, which is remarkable in many ways. First of all it is an unsplit casting, that is to say, it is not divided in the usual lower and upper halves, but consists of one unbroken aluminium casting into which the shafts are introduced endways, as can be seen from our illustration showing the crank-shaft with its rearmost bearing.



Latest model 4-seater body on Chenard-Walcker chassis.



Side view of the Chenard-Walcker chassis.

This shaft runs in two bearings only, but it has been made of such a large diameter that no whip is possible, and the absence of a central crank-bearing is not noticeable. The engine is cooled by natural water circulation, and

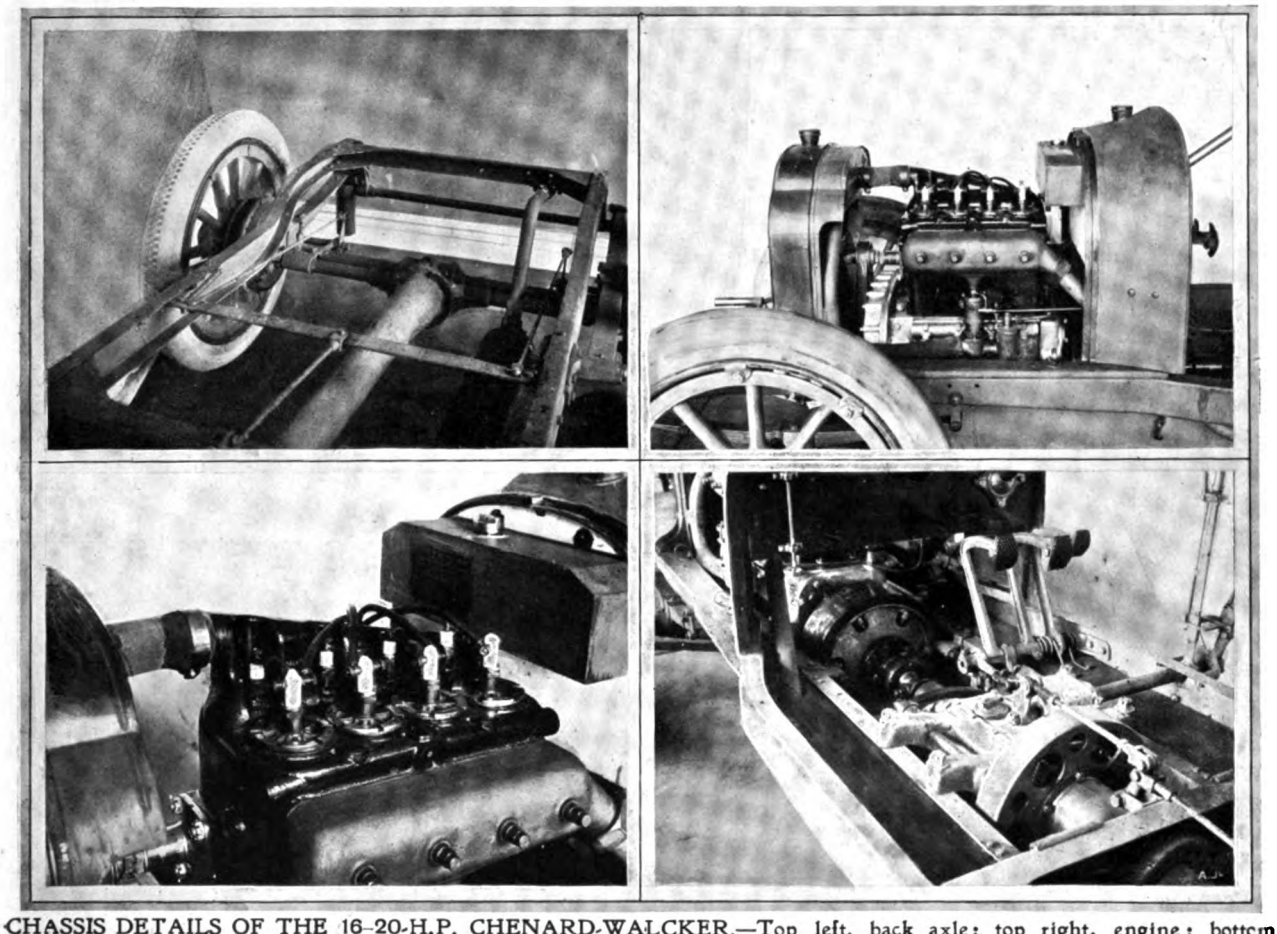
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the accessibility of all the water-joints is not the least of the good features of the design. The action of the radiator is assisted by a high-speed fan.

In accordance with modern practice, all the valves are placed on the near side of the engine. They are enclosed by a substantial cover-plate, and are rendered noiseless in their action by interposing valve lifters between the tappets and the cams.

The cam-shaft is contained in a separate housing, which, although cast integral with the crank-case, isolates the cam-shaft completely from the interior of the base-chamber. This cam-shaft casing is filled with oil from the pump, that also supplies the lubrication for the engine bearings, in such a manner that the whole shaft revolves in a bath of oil, which reaches above the highest points of the cams proper. It is therefore obvious that a minimum of noise, if any at all, is created by the action of the cams. The cam-shaft is driven by a noiseless self-pitching chain, and one chain only is used to drive the cam-shaft on the near-side, and the magneto on the off-side. In order to keep this chain in proper tension, the bearing of the magneto-shaft, together with the magneto base and magneto proper have been mounted on a slide, which is provided with an external set screw, by means of which any wear of the chain can be taken up from outside in the simplest possible way. This chain adjustment forms the subject of one of the sketches that accompany this article.

We have already had occasion to refer to the oil-pump, which distributes the lubricant throughout the engine, but to say that the engine is lubricated by pressure-pump through the hollow crank-shaft would not be doing full justice to a most interesting and well thought out lubricating system. The lubricant is contained in the lowest part of the base-chamber, whence it is sucked up by the pump and distributed to the two crank-bearings. From this point it enters oilways drilled into the crank-shaft, but the absence of any centre-bearing would make it impossible for oil to reach the two inner big-end bearings owing to the centrifugal force set up by the revolutions of the crank-shaft. In order to overcome this, semi-circular aluminium oil ducts are bolted to the two inner crank-webs in such a manner that oil can flow through the channels inside the casting in spite of the centrifugal force; this power, indeed, considerably aids the oil on its way to the two inner big-ends. In order to get the oil oozing out of the big-end bearings well distributed over the pistons and up to the little-ends, special splash discs are fitted to the crank-pins, and are clearly shown in our illustration of the crank-shaft. These discs catch the oil as it leaves the bearings and throw it up to those places where it is required. The oil in the sump is constantly maintained at the same level, on the chicken-trough principle, through a vertical pipe leading up to an oil tank on the engine side of the dashboard. All that is necessary, therefore, is to keep

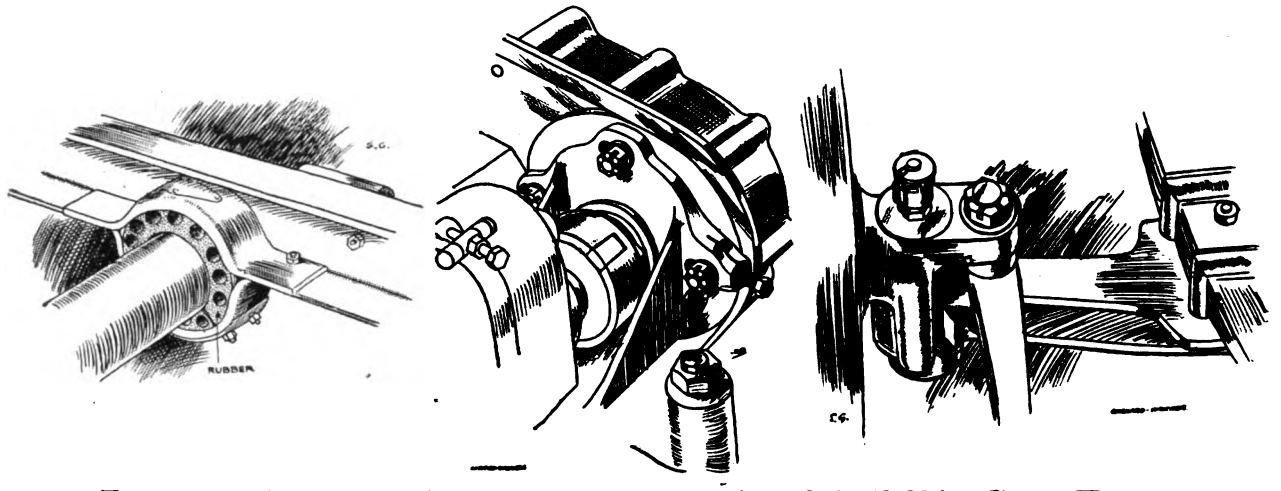


CHASSIS DETAILS OF THE 16-20-H.P. CHENARD-WALCKER.—Top left, back axle; top right, engine; bottom left, two-point ignition; bottom right, centre of chassis.

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the tank on the dashboard filled up in order to make sure of the correct level in the sump. A very good idea of the sizes of the pistons, connecting-rods, and especially of the very large diameter of big-end and gudgeon-pin bearing is conveyed by another of our illustrations, showing a connecting-rod, piston and gudgeon-pin; for the sake of comparison a penny has been placed next to the little-end

the suction of the engine. The piston is also provided with a number of holes which at a certain position coincide with extra air-holes drilled into the body of the carburettor, and thus automatically admit extra air whenever necessary. To a certain extent, however, the driver can regulate the amount of extra air through a sleeve around the air-holes in the carburettor, by means of which

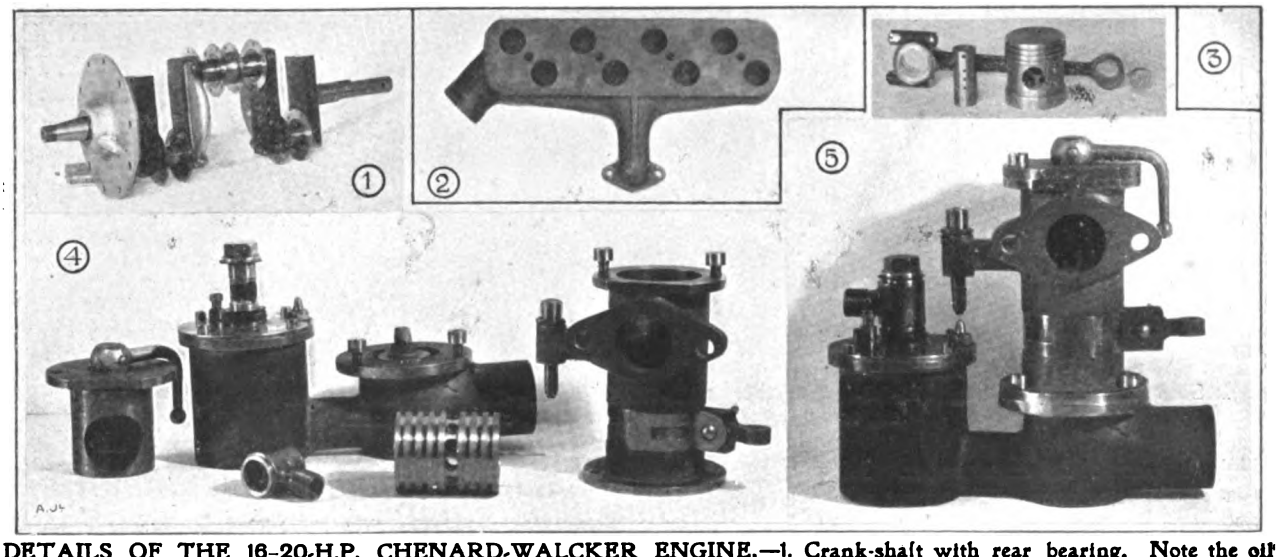


Torque-tube anchorage, timing-chain adjustment, and steering-head of the 16-20-h.p. Chenard-Walcker.

of the connecting-rod. The shape of the piston should also be noted; it is machined from a steel stamping and weighs only 1 lb. $2\frac{3}{4}$ ozs.

Another item of more than passing interest is the Chenard-Walcker carburettor, which is fitted to the near side of the engine and is supplied with petrol from a tank on the dashboard. It is of the type in which the supply of petrol is regulated by a tapered needle working in the

all of them, or any number, can be opened or closed. A pilot-jet, for slow running when not under load, is also provided, and very accessibly placed on the top of the float-chamber, where it can be adjusted without having to dismantle anything. Thus we have a carburettor that to our mind is a very excellent compromise between the automatic and the controlled type, as it can be used, just as any automatic type by the less expert driver, while a



DETAILS OF THE 16-20-H.P. CHENARD-WALCKER ENGINE.—1. Crank-shaft with rear bearing. Note the oil discs. 2. Combined inlet and exhaust-pipe casting. The upper holes are exhaust, the lower the inlet-ports. 3. Piston gudgeon-pin, and connecting-rod. Note the penny on the right. 4. Carburettor dismantled, and 5, assembled.

jet, and the makers claim to be the originators of this principle, which they have used as far back as in 1902, and which has since been adopted by quite a number of successful makers of carburettors and cars. In this particular carburettor, the tapered needle is attached to a piston in the choke-tube which is raised or lowered by

the same time it allows the very finest adjustments and full display of individuality to the expert who delights in getting the very last ounce of efficiency out of his car. The main air, it should not be overlooked, it not taken from the neighbourhood of the exhaust pipe, as is the almost universal practice in modern carburettors, but

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a special hot air chamber has been attached to the underside of the little water tank at the back of the radiator, and the air is drawn from this chamber, which to some extent also acts as a silencer and eliminates a good deal of the usual carburettor hiss.

A Bosch high tension magneto is fitted on the off side and supplies the current for the ignition; the firing point is fixed. We have always been an advocate of the hand-timed ignition, but in this case there is less occasion for us to comment on the absence of an advance lever, because the engine is equipped with two-point ignition. As is evident from our illustration, the current from the magneto is led to an Eyquem two-pole plug and after a spark has taken place here passes on to a sparking plug of the usual type, whence it returns to the magneto in the ordinary way. The time between the occurrence of the two sparks is so insignificant as to be altogether neglible and for all practical purposes the two sparks occur at one and the same moment.

Not less interesting is the transmission system, which, like the engine, embodies quite a number of highly interesting and original features. The clutch is of the leather-cone type, but in order to assure a smooth and progressive engagement, six spring-loaded plungers are inserted under the leather at equal distances around the clutch cone. The gear-box, which, like the engine, is bolted to an auxiliary frame, also deserves our attention, because unlike most of the modern short and square boxes, it is long and narrow, a shape that is said to act less as a sounding box than the more common type.

From what we have seen of the running of this car we have to admit that this claim seems to be borne out in practice, because the running of the car when the lower gears are engaged certainly is remarkably quiet. There are the usual four speeds forward and a reverse. The universal joint behind the gear-box is well protected by an oil retaining metal casing. The propeller shaft runs inside a torque tube of large diameter, which, it should be noted, is not called upon to transmit the drive of the rear axle and therefore its forward end is anchored to the cross girder of the chassis merely by a steel clamp while a rubber cushion interposed between the tube and the clamp eliminates any noise and allows a certain amount of flexibility.

Although the rear axle of Chenard-Walcker cars has been described in the pages of the AUTO. on previous occasions, it may be as well to remind our readers that the weight is carried on one solid and unbroken axle on which the wheels are mounted. Attached to the wheels is an internally toothed ring through which the drive is applied to the wheels by means of pinions on the ends of the axle-shafts. The differential gear-case is bolted to the centre of the axle proper in such a way that no other strains except actual driving strains are imposed upon it.

The drive from the back-axle to the frame is transmitted through the semi-elliptic rear-springs, which, therefore, are attached at their forward end without the aid of a shackle. At the rear end, however, they are fastened to a "Telesco" shock-absorber, which in turn is attached to the frame; a very luxurious suspension is thereby assured. The front-axle is suspended on a pair of half elliptic-springs in the usual way.

There are the customary number of two independent sets of brakes, of which the foot-brake acts on a very large drum behind the gear-box, while the side-brake, which is well compensated, works on the rear-wheel drums by means of internally-expending shoes.

It must also be said of Messrs. Chenard-Walcker that they show remarkably fine taste in the body-work which they supply with their chassis, and for this reason, outside any other, a visit to their well-appointed show-rooms at 174-176, Great Portland Street, W., will prove highly interesting and profitable to the intending purchaser as well as to the discriminating expert.

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MOTOR DRIVING.

NOWADAYS the actual driving of a car is a matter easy to accomplish by any one of ordinary capability. But to be able to keep a car in good condition, as well as drive it, is, even with the nearly perfect state of present automobile design, a thing that requires a considerable amount of careful training, and, if we may so put it, a thorough practical knowledge of the theoretical side of automobile practice. By this we mean that it does not suffice merely to attend lectures on automobile design, but one should be able to see the actual component parts of an automobile and observe practical demonstrations of the different theories.

One way of obtaining this training is to enter some automobile works and study the theoretical side at the same time. But this is a somewhat lengthy method, and a far better one would be to join a school for this purpose, several of which have been formed.

One we know of, which we believe to be the oldest in this country, is the Motor Drivers' Union, Ltd., of 47, Victoria Street, S.W., which has turned out thousands of drivers. This school is of high repute, and has a very sound system of teaching, the course of instruction being divided into two sections:—1. Mechanism; 2. Driving and repairs. When the pupil has passed through both sections he is required to undergo an examination in order to obtain a certificate, should he fail however, further lessons are given free of charge until he becomes thoroughly proficient. The accompanying illustration shows two of the school cars—a Darracq and a Star—starting from the garage ready for a course of instruction.

Undoubtedly the output of the motor industry is always increasing, and naturally the demand for drivers increases accordingly. Motor car owners requiring drivers will find it in their interests to apply to this school, who have an employment bureau licensed by the L.C.C., and who supply capable and intelligent men free of charge, whose abilities can first be tested on any of the school's cars without any fees whatsoever.



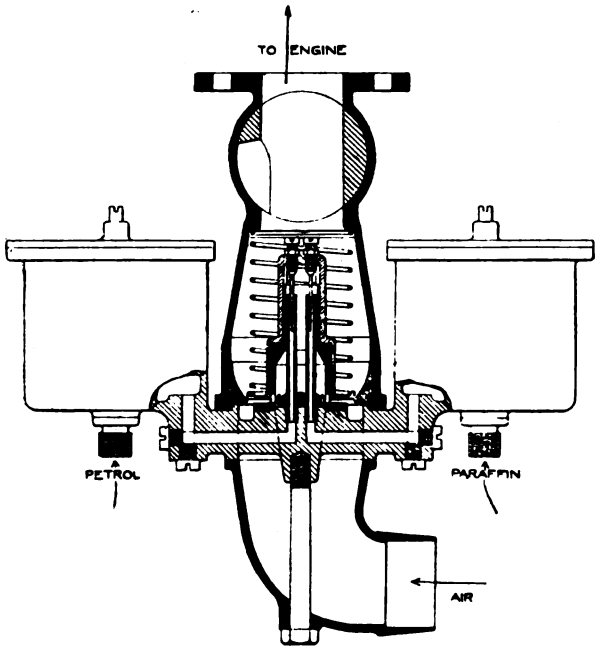
Some pupils of the Motor Drivers' Union starting out for a course of instruction on a Darracq and a Star.

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THE HAMILTON "BIFUEL" CARBURETTOR.

WITH the present high prices of petrol and very little, if any prospects of a reduction in the near future, motorists who wish to reduce the cost of fuel for their cars may do worse than investigate the merits of the Hamilton "Bifuel" Carburettor of which we are able to give the following particulars.

As its name implies this new invention consists of an arrangement whereby two kinds of fuel of different



density, such as petrol and paraffin, may be utilised simultaneously in any desirable proportion. It consists of two separate jets mounted side by side within a choke tube of comparatively small bore, standing in the centre of and communicating at the top with the mixing chamber. Each jet is fed from a separate float chamber in the ordinary way.

Shaped somewhat like an inverted mushroom valve with a hollow stem and mounted on the central choke tube is an air valve, which is held to its seat by means of a suitable spring and is opened by the suction of the engine. The movements of this air valve are damped by a dashpot which is formed by the inner face of its stem and the outer surface of the choke tube. At its top the stem carries a bridge piece, in which two tapered needles are adjustably mounted. They extend downwards into the openings of the jets, and following the movements of the valve they increase or decrease the jet orifice in proportion to their taper and the amount of lift. The former, of course, is a matter of initial adjustment, while the latter is regulated by the engine speed.

With the main air valve in its normal or closed position the needle controlling the paraffin jet is screwed down so as to shut off the fuel entirely, whilst the needle controlling the petrol jet is adjusted to allow the passage of just enough fuel to form an explosive mixture with the small amount of air passing through the choke tube when the engine is running idle. Thus we have virtually a small petrol carburettor sufficient to feed the engine when not under load, and with the throttle nearly closed so as to allow it to just tick round nicely and also sufficient to start up from cold. Directly the throttle, which is of the rotary drum type, is opened the increased suction creates a vacuum in the mixing chamber which the small amount of gas passing through the central choke tube is unable to fill. The air valve is therefore lifted from its seat and admits sufficient air to supply the increased demand of the engine; but the rising air valve not only admits the required amount of air, but carrying the two taper-needles with it, the jet orifices are opened and allow such a quantity of fuel, both petrol and paraffin, to pass which is in the exact proportion to the amount of air admitted by the valve. Therefore, by merely opening the throttle the driver automatically brings into simultaneous operation both the petrol and paraffin jets, and the engine continues to use the mixed fuels in the correct proportion.

We are informed that it is possible to run the "Bifuel" carburettor economically with 60 per cent. of petrol and 40 per cent. of paraffin without any further heating than the usual hot air intake pipe. The makers, however, claim that if the whole length of the induction pipe, or at least a good proportion of it, is heated by either a hot water or exhaust gas jacket, the carburettor will deliver a correct mixture consisting of 60 per cent. of paraffin and 40 per cent. of petrol.

We have not yet had an opportunity of testing the device in practice, nor have, as far as we are aware, any official trials taken place, but we feel confident that the makers will sooner or later subject it to an R.A.C. test, the result of which should provide some interesting figures. Meanwhile, full particulars may be obtained from the Hamilton Engineering Works, Euston Buildings, George Street, Euston Road, London, N.W.



An A.A. and M.U. Foreign Handbook.

LIKE everything that is issued under the ægis of the A.A and M.U., the new foreign handbook is wonderfully complete and withal compact. In a little book which measures about 5½ by 3¼ inches, the compilers have managed to cram an enormous amount of useful information concerning touring on the Continent. Although all this information is arranged in such a manner that it is very easy of reference yet a very comprehensive index is a feature which should obviate any remote difficulty in turning up information. The book will be issued free of charge to members touring abroad.



Lord Lilford's 30-h.p. Daimler limousine, one of the latest cars turned out by the Daimler Company.

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ACCESSORIES OF THE WEEK.

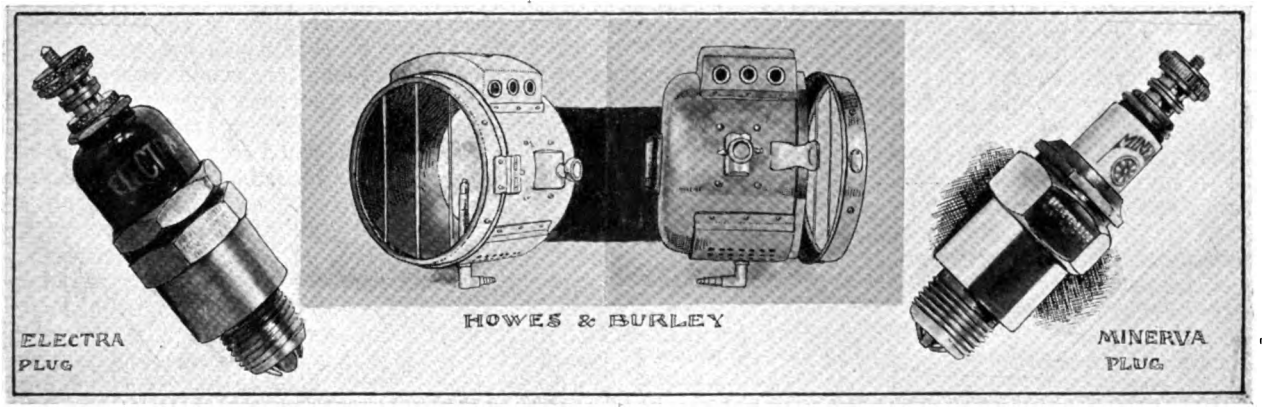
THE Electra plug, which forms one of our illustrations this week, has been designed to facilitate ready cleaning, as the central electrode can be easily removed from the body of the plug without disturbing the latter's seating on the cylinder-head and, what is more, can be as easily replaced to form a perfectly gas-tight joint. The sectional drawing will make its method of construction clear; it will appeal to everyone how easy it is to clean the central electrode by means of a rag.



THE point about the Minerva plug, also illustrated this week, is that the insulation of the central electrode is carried almost right down to the sparking-points, in which, as a matter of fact, it does not differ from the Electra plug, but it is not so easily accessible for cleaning. The wholesale distributor for both these plugs in this country is Mr. Einar Just, of Paris, whose address is 2, Palace Gardens Mansions, The Mall, Kensington, W.

ALTHOUGH not cheap, one may decisively assert that Howes and Burley's lamps, which are handled in London and the south of England by Mr. G. H. Smith, of 14A, Great Marlborough Street, W., are really good value for the money.

Their solidity is a byword in the trade, and the little searchlight type lamp we illustrate, and which with a 7½-in. front is listed at £2 10s., well lives up to this reputation. This lamp is intended primarily for medium and small sized cars, and a point that has appealed to us frequently is that lamps built for this class of work ought, comparatively, to be made as strong if not stronger than lamps built for service on large cars, for the simple reason that as a general rule the smaller the car the greater the vibration, and from a combination of reasons the bigger the liability of careless driving.



We would remind readers that the manufacturers also sell a very neat set of copper tubing to form a connection between lamps and generator.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Official.—Over 3,700 motorists joined the Association last month. Among the new members who have just joined is the Rt. Hon. H. H. Asquith, M.P., the Prime Minister. The total membership of the Association is now well over 52,000.

Special Road Warning.—Will members exercise special care in approaching Cardiff. This warning relates to all roads leading into Cardiff within a distance of two miles.

Road Side Telephones.—In addition to the telephones installed in sentry boxes at Esher, Clandon cross roads, Milford, Ashtead, Potters Bar and Staines Bridge, another point just added is at Hindhead (Telephone No. 55 Hindhead). Members are informed that telegrams and express letters may be sent from the sentry boxes at Esher, Clandon cross roads, Ashtead, and Staines Bridge.

Patrols' Services.—Members should note that the road patrols of the Association are, as a rule, competent to execute minor roadside repairs to motor cars and motor cycles, and that they are under instructions to render such services providing the time involved does not unduly prevent them from carrying on their duties to other members. They are also well acquainted with the various roads leading off their beats, and can therefore give reliable information regarding detours, or main roads running through towns. In the event of cars coming to a standstill with empty petrol tanks, or for lack of other supplies, the handbook—which should always be carried on the car—should be consulted, and if the road is patrolled by the Association, the services of the road patrol may be enlisted for procuring the necessary supplies from the nearest garage.

Ferry Charges for Duo-Cars.—In response to a member's request, the Association is endeavouring to obtain more reasonable charges for "duo-cars" weighing under 3 cwt. crossing ferries. At present such vehicles are being charged full motor car rates at certain ferries, although the charges for motor cycles with side cars are in some cases less than a quarter those levied for cars.

A Useless Tollgate Charge.—A member has informed the Association that although the road beyond the tollgate between Whitby and Sandsend is blocked, the toll charges are being taken, and cars allowed to proceed without any warning of the state of the road being given.

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Ealing Sticks to its Old Fire Engine and Horses.

THE powers that be at Ealing have been considering the purchase of a motor combination machine for its fire brigade, but the proposal has been rejected. Instead, a pair of horses is to be purchased to eat hay at the rate-payer's expense, and the old engine will be retained.

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By VICTOR HART.

Tarred Road Troubles.

All motorists ought to be thankful for the benefits of road tarring, and not the least of the advantages over untreated surfaces is the absence of side-slip mixture. One can write of this good feature with enthusiasm of counties like Kent, where the surveyor, Mr. H. P. Maybury, so thoroughly understands his profession that all the roads under his control are models for other counties to imitate. Some surveyors appear to hold the belief that any kind of tar is suitable, and having secured the sanction of their Roads committee to dust-laying expenditure, order the materials and leave supervision of the work to ignorant subordinates. A long spell of winter weather is the true test of tarring, for unless the right material is used, and put down with due regard to individual sections of road and at the correct time, failure is inevitable. These are the reasons why tarred roads vary so much in winter even within half a dozen miles where that length is controlled by one surveyor. The Roads Board is gradually defining "standards," yet the good intentions of the Board can be nullified in counties saddled with highways officials of the type that has kept most of Ireland 50 years behind modern ideas. Black slime always reveals lack of skilled supervision, and it does seem to me unfair that Road Board grants continue to be freely given for tarring to the bad as well as the good counties. Common sense demands that results ought to govern allocation of money from the central authority.

Freshly spread tar is terrible stuff to drive over, and the man who steers a motor bicycle or car at a fast pace deserves the trouble he is preparing for himself, to remove the tar specs. A new and hitherto unsuspected trouble connected with freshly laid tar was an experience I personally encountered last week that no precaution can prevent, other than a dismount and pushing the machine along the footpath. In my own suburban neighbourhood the Borough Council saved so much money in 1911 through tarring that every thoroughfare is being coated. Near my residence four days had elapsed after the tarring of a short hill, and plenty of traffic having traversed it I reckoned it safe enough. So it was as the tar was set, but half a mile farther found me repairing a puncture at the rear tyre. The tar was coated with gravel, and iron-tyred vehicles having partially crushed and broken the small stones into semblance of razor-edged flints, one of the pieces was caught between the rubber studs of my tyre cover, pressed close home by a blob of tar and the point of the stone went straight through a stud from the top as though pierced by a gimlet. My thoughts were not bettered by the fact that a brand new cover was punctured in the first 300 yards of its life. Since that mishap I have dropped down into the gutter the moment I see gravelled tar and commend the plan to other motor cyclists.

A No-Trouble Vehicle.

A car owner has written to the Press and expressed his desire to purchase something that will never require attention, travel year in and year out with only fuel, oil and water replenishment, climb hills at big speed and be capable of running 50 m.p.h. on the level. Nothing is said about cost of maintenance, but if this last factor is also considered a motor cycle would score all ends up. A 7-h.p. twin-engine, say a J.A.P. or a Chater-Lea, three-speed gear-box, chain drive throughout, a kick starter and mechanical pump lubricator would do everything necessary when hitched on to a good side-car. Tyres of 3-inch section for rear wheel of bicycle and side-car wheel, together with a front 2½-inch tyre would make for comfortable travelling, save punctures and give longer life than sizes generally fitted. Such a combination should never give trouble and could easily average a rate of speed throughout only attainable by a 50-h.p. car; in districts like North Somerset or Cumberland no car could reach within 8 or 10 m.p.h. of the speed easily maintained by a 7-h.p. side-car. One drawback is vibration, and it is here only that a car possesses overwhelming advantages; the driver's comfort and protection from rain, mud and wind, are points where the car must always lead. Somewhere about £90 covers the initial outlay upon this side-car combination, but it can be assumed that five times the money would barely cover the cost of a car which would conform to the enquirer's special needs, while annual expense could also be reckoned at the same ratio.

Hills in the Six Days' Trials.

In my last notes space would only permit of bare reference to the average gradients of the hills included in the Six Days' Trials, and writing before the conclusion of the event the performances cannot be discussed. Nowadays all makes are so consistently reliable that almost the only method of arriving at final award is to include hills of far greater severity than any encountered in ordinary touring. We had this class of hill in 1911, but this year, so far as the published routes disclose, there are only two hills severe enough to form real tests. These are the grades leading up from Lynmouth to Lynton and Beggars' Roost Hill close to Lynton. The committee of the A.C.U. have cut these two hills out of the main scheme and made them optional climbs, for which drivers succeeding thereon will receive an extra bonus of 25 marks for each hill. Beggars' Roost is a freak climb on a by-road, and could have been ignored; but Lynton Hill is on a main road, and any motor cyclist desiring to go directly up to Lynton, after descending Countisbury, must tackle the alleged 1-in-4 gradient. The perennially loose surface and likelihood of drivers being obstructed by pedestrians are the reasons why this hill is being treated as an

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exception. As marshals will be stationed up the hill for observation, this discounts the "obstruction" excuse, because any such happenings are always admitted as traffic stops, drivers being given the opportunity of a second attempt. The "surface" excuse cannot be defended for the reason that the trials organisers have always kept in view improvements in construction which will secure reliability and efficiency, these objects being definitely stated in the first paragraph of the regulations. Wet days may alter the conditions, but if dry weather prevails any ordinary 2¾-h.p. machine fitted with a multi-change-gear will tackle all compulsory hills without a fault. Having travelled over nearly every road in Somerset, North and South Devon, where a car or motor cycle can be driven, I consider it regrettable that at least one day was not devoted to the district around Bovey, Widdecombe, Holne, and Chagford, and another day to the by-roads at the back of Minehead, around Cutcombe, and Simonsbath.

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CORRESPONDENCE.

The Fuel Question.

SIR,—It has been often written that the motor industry owes a very great deal to the experience and knowledge gained through racing. The evolution of the motor vehicle has been a rapid process owing to this, and I think it has been shown recently that there is still much to be learned, and much valuable information to be obtained from racing.

Why not, therefore, make an attempt to solve our difficulties in regard to fuel by the same means? Racing has been utilised for testing gears, engines, tyres, &c., but with the exception of the French Government trial in 1902, known as the Circuit du Nord, which was run on a special fuel largely composed of alcohol, nothing has been done in regard to testing and trying cars run on fuels other than petrol.

It may be said that there are so many other fuels which are possible that it would be a most difficult matter to arrange conditions which would suit all. Remembering, however, that our need is a very pressing one, it seems that we might at least take one fuel which could be easily dealt with, and although perfect results might not be obtained at first, nevertheless it would be a start in the right direction.

If paraffin were possible, the ease with which it can be obtained makes it specially suitable, and, therefore, why not a paraffin long-distance race. The test should certainly be a road test, and, therefore, if the Isle of Man course could be obtained for the purpose, an event could be held which would be of the greatest value to the industry, and which, I think, would be supported by the manufacturers.

The regulations should provide for the use of a maximum bore and stroke, and for the use of a standard type engine to be fitted with a carburettor which would enable the car to run on a heavy grade of paraffin.

For the purposes of encouragement, I would suggest the conditions for the first race should be made as easy as possible. If necessary, the competitors should be allowed to start up on petrol, and the quantity of paraffin not too severely restricted. The attention of the public would be drawn to the possibilities of a heavier fuel, and if later on special tests were arranged dealing with smell and visible exhaust, it is to be expected that many users would discover that the results obtained from the use of paraffin were good enough for their requirements.

Some recent tests made by me at Brooklands on a mixture of petrol and paraffin, have enabled me to say that there is no special difficulty in adapting almost any car to the use of a heavier fuel.

If the permission of the Isle of Man authorities could be obtained the race could be run in October.

35, Sackville Street, W. CHARLES JARROTT.



MOTORISTS AND THEIR CARS.—Mr. Rowland Hodge, Managing Director of the Northumberland Shipping Co., in his new Rolls-Royce, with specially-designed and constructed body by Messrs. Sir William Angus Sanderson and Co., of Newcastle. That Mr. Hodge is an enthusiastic motorist and a pioneer of the pastime in Northumberland, where our photograph was taken at his house, Coxlodge Hall, may be gathered from the fact that this is the tenth car which Mr. Hodge has acquired during the last few years through Sir William Angus Sanderson and Co.

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Notes from New York



IN view of the fact that the National Good Roads Congress will be meeting in Detroit from September 30th to October 5th, it is proposed to bring forward the date of the start of the A.A.A. National Tour from October 3rd to some time during the week after September 21st.

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A novelty was seen at Wichita, Kan., on July 19th when a motor polo game was played, the teams being mounted on four stripped motor cars, each carrying two men. The game was played very much on the same lines as ordinary polo, and, after three ten-minute periods, ended in a drawn game, the score being one all. Incidentally one car overturned, but it was righted and continued in the game.

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Its fiscal year having ended on July 31st, the Willys Overland Co. reports a total production of 20,845 cars for the 1912 season. It is not uninteresting to notice the progress of the year's production month by month. In August, 1911, 284 cars were produced, in September 869, Oct. 1,472, Nov. 1,851, Dec. 1,588, Jan. 1,826, Feb. 2,201, March 2,960, April 3,011, May 2,605, June 1,591, and July 539. For the coming season the programme is an output of 40,000 cars.

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An important feature in the organisation of long distance trials in America is the pathfinding trip, and there is always keen competition among the manufacturers to supply the car for this work. For the forthcoming A.A.A. national reliability tour a Flanders electric car has been selected, and it is believed to be the first occasion on which an electric vehicle has been utilised for such work.

• • •

Stern measures are now being taken by the judges in dealing with culprits convicted of stealing cars, an offence which has assumed serious proportions recently. The other day, at Paterson, N.J., the secretary of an automobile exchange was fined $1,000 and sent to prison for an indefinite term of two to seven years for stealing a car some months ago from outside a house in Delawanna. When the car was found in the possession of the prisoner he declared he had bought it.

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The price of boots and shoes in the States has gone up 20 per cent., due it is said to the scarcity of leather, for which of course the motor car is blamed. It would appear that the amount of leather used in a motor car is not so much as the leather used in the harness, &c., of the horses which it displaces. But still something has to be blamed for the prices having gone up, and why not put it on the motor? It is said that during the past four and a-half years the price of leather has increased by 72 per cent.

• • •

In connection with the Cadillaqua celebrations at Detroit, an immense procession of motor cars paraded through the streets on July 24th. Some 5,000 beautifully and cleverly decorated cars took part in the affair, and although in many cases they were three abreast, the procession took an hour and three-quarters to pass the judging stand. All along the six-mile route there was a densely-packed crowd of spectators.

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The National Association of Automobile Manufacturers has been seriously considering the question of organising an exhibition of commercial motor vehicles to be held in New York during the summer, but the project is opposed by the New York Motor Truck Club. The latter body has, however, appointed a committee to go into the question of organising an open air commercial vehicle show to be held in the vicinity of New York next spring. In connection with the annual parade of commercial vehicles it is proposed that an effort should be made to hold such an event in every large city on a certain day. It is believed that such a simultaneous demonstration would do far more good than any single parade in a single city.

• • •

Plans have been formulated by the Ford Motor Co. for a very considerable increase in its system of assembling plants in various parts of the States. In addition to those already maintained in New York City and Kansas, and those which are to be located in St. Louis, San Francisco, Los Angeles, Portland, and Seattle, the Company is arranging to have similar establishments in Boston, Philadelphia, Chicago, Minneapolis, Denver, and Memphis; and it is stated that the smallest of these assembling plants will be bigger than the entire Ford factory of eight years ago.

• • •

A little incident marked a reliability tour, which started from and finished at Indianapolis recently. It was "welcome" all the way until Newark was reached, when the official path marker was arrested by the local police and charged with littering the streets with confetti, which he had done so that the course might easily be followed. He was discharged with a caution and the tourists were warned not to distribute advertising literature while within the city limits.

• • •

A refinement for fire stations has been invented by Superintendent L. N. Heedner, of the South Manchester, N.H., Fire Brigade. It consists of an engine-starting device which starts up the motor immediately the alarm rings in the fire station, and it is claimed that by its use the time for getting away from the station may still further be reduced.

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A new adjective for motor car dealers has been coined by Mr. C. A. Lord, the agent for the Overland cars at Lincoln, Neb. It is "standuptiveness." It is expressive, but its length will probably militate against its success.

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New York's number-plates for next year are to be dark purple with raised white figures and letters. Each plate will bear "1913," and those for trade vehicles will bear the word "commercial" in addition. The number of plates ordered is 90,500 pairs. Between January 1st and June 1st 85,300 vehicles were registered in New York State, including 76,164 pleasure cars, and 36,065 chauffeurs' licences were issued.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting of the Management Committee was held on Monday last. Present: Mr. A. J. Allison, presiding. Committee: Messrs. Emmerson, Tipper, Oliver, and Dean.

The minutes of the previous meeting were read and confirmed.

Legal Department.

The secretary reported the result of the summons taken out against the Society by the London County Council. It will be remembered that the L.C.C. in November, 1911, sent an inspector to the offices in order to obtain particulars of the Employment Bureau. Every facility was given by the secretary to enable the inspector to report to the department concerned. A communication asking for further information was received, and the secretary called at the L.C.C. offices and explained the position to the official in charge, and from his remarks it was gathered that the Council would be satisfied that no profit was derived from the business of the Employment Bureau. However, in due course came the demand for the N.S.C. to take out a licence at a fee of 2 guineas. The committee considered the matter, and agreed that inasmuch that the Society made no profit from the Bureau, and was a properly constituted society, working the Bureau only for the benefit of the members, that no licence was needed. A letter to this effect was sent to the L.C.C. who replied that they demanded that an application be made for a licence. The committee again discussed the matter, and came to the conclusion that the contributions paid by the members were held by them in trust for the members, and that being so, they were unanimously agreed to safeguard the money of the members by refusing to pay a licence fee of 2 guineas. There being a clause in the Act which allowed Employment Bureaux such as were formed by churches and societies, working without profit or for philanthropic purposes, to obtain a licence for a nominal fee of 1*s.*, the committee contended that if a licence were necessary, this clause in the Act would apply, therefore the secretary was instructed to apply for a licence at a fee of 1*s.*, and to approach kindred societies as to uniting and fighting the case for the sake of the principle involved. The R.A.C. was convinced that the case was one which should be supported, and readily fell into line. The only other society of our kind, when approached, had already complied with the Council's demand, a fact which did not improve the situation. A licence was applied for and 1*s.* sent. The Council demanded the balance—£2 1*s.*—and failing to receive satisfaction, issued a summons against the society for the amount claimed as balance. The case was heard before His Honour Judge Woodfall, on Wednesday, the 7th, at the Westminster County Court. Mr. Stampa W. Lambert, instructed by Mr. C. F. Appleton, the society's solicitor, appeared to defend the action on behalf of the members. The counsel appearing for the L.C.C. in opening the case, contended that the members, by their contributions, really paid a fee to the Employment Bureau for the reason that the Bureau was put forward as an inducement to obtain members. He submitted the Preliminary Handbook, issued in 1911, as proving this point.

His Honour: "This Act was passed to prevent bogus societies and persons from making money by fraudulent means by running Employment Bureaux. You do not mean to say this is the reason for this action?"

Counsel: "Certainly not. The Society is a properly constituted one, but we do say we are entitled to a fee of £2 2*s.*" He submitted the balance sheet in the booklet, which proved that sums of money were expended on behalf of the Bureau.

His Honour: "But it is on the wrong side of the sheet."

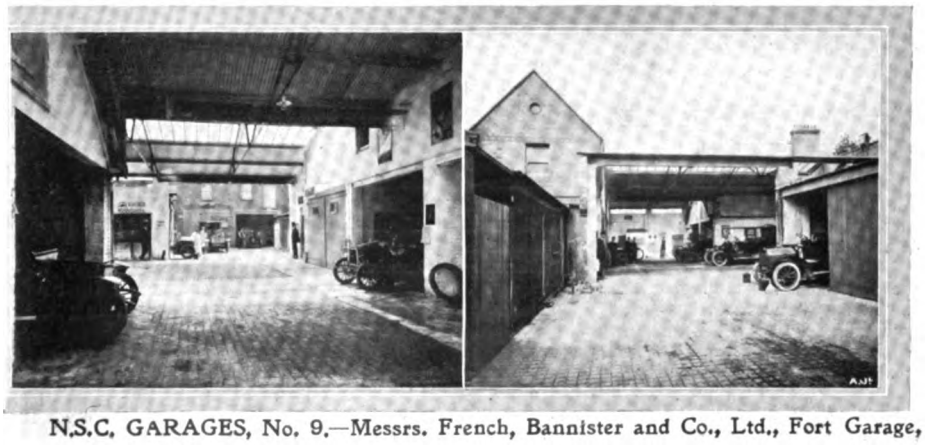
Counsel: "That may be, but it shows that it is an Employment Bureau in every sense of the word."

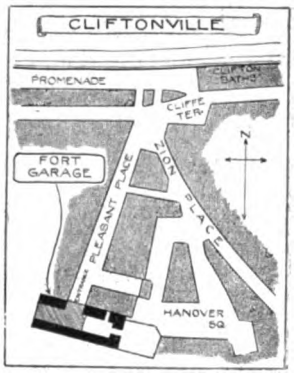
Mr. Stampa Lambert called the general secretary, who proved the rules relating to the Bureau to be that two months must elapse from date of joining before a member would be entitled to the Bureau. The last balance sheet was submitted to his Honour, and counsel for the prosecution pointed out the moneys expended on the Bureau, and in cross-examination asked whether wages, printing, and other expenditure could not be taken as for the Employment Bureau. The secretary answered that naturally it would be so. The Society agreed that a very considerable sum of money was paid in respect of the Bureau, but there were no fees of any kind charged either to employers or members, therefore the cost of the Bureau could only mean a loss, and not a profit.

His Honour: "Tell me just what the work of the Society is."

The secretary explained, and his Honour remarked that the legal profession was not supported to any great extent, taking the item for legal aid on the sheet.

The secretary: "That, your Honour, tends to prove the quality of our members, and the careful manner in which they drive."





N.S.C. GARAGES, No. 9.—Messrs. French, Bannister and Co., Ltd., Fort Garage, **Cliftonville, Margate.**

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Mr. C. W. Nairne was present as a witness, but his Honour, having made up his mind, proceeded to sum up. He was of the opinion that the National Society of Chauffeurs was a properly constituted club, doing work for its members only. It carried on the Employment Bureau only for the members. No one outside could obtain a situation. There were no fees charged on either side, therefore no profits were sought for or made. It was quite right for the L.C.C. to bring these cases before the Courts if they thought the societies were bogus ones, or running for a profit and trying to evade the payment of the just fees. In this case, however, according to the balance sheets, the Society did not set out for profit. The word "philanthropic" meant "for the common good of all," and this Bureau was run for the common good of the members. There were nine other objects of the Society, and he was perfectly satisfied that the Society was entitled to obtain a licence for the fee of 1s. There would be judgment for the defendants, with costs.

The result of this action justifies the committee's endeavour to safeguard the money of the members, and the thanks of the Society are tendered to Mr. Stampa W. Lambert, Mr. C. F. Appleton, and Mr. C. W. Nairne for their efforts on behalf of the Society in this case.

The solicitor's account for July was submitted and ordered to be paid.

The secretary reported that the letter box of the Society had been robbed to some considerable extent. He had succeeded in catching the culprit. A substantial sum of money had been lost, and daily enquiries were being made by members whose cards had not been returned. It was decided to call a special meeting of the committee for Wednesday, 14th, to deal with the matter. Members are earnestly requested to cross all Postal Orders for protection of their own and the Society's interests.

In last week's issue, mention was made of, and a warning given to members not to join a certain limited liability company being formed. We are now informed that the scheme has been abandoned. My remarks do not apply to any newly formed society.

Accepted for Membership.

James Harris, Witham-on-the-Hill, Lincolnshire.
Allan Outen, Havant, Hants.
George Walpole, London.
John Congdon, Earl's Court.
Herbert Burnett, Arundel, Sussex.
Henry Heritage, Arundel, Sussex.
Wm. Reynolds, Ravenscar, Yorks.

Applications for Membership.

Hugh Flynn, Manchester.
George Durrant, Windsor.
William C. W. Gardner, Cheltenham.

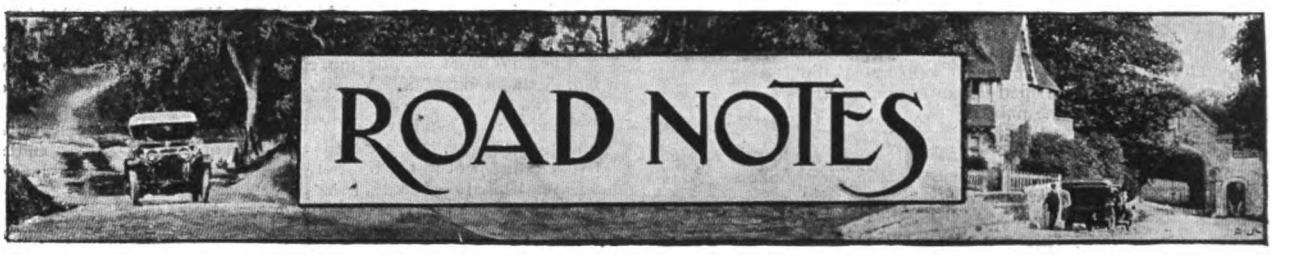
The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2s. 6d. Subsequent subscriptions, 2s. per month. Payable in advance on the 1st of each month. Badges, 1s. 1d., post free. Members may pay yearly 21s., or half-yearly 10s. 6d., payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.



COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

Chester-Frodsham Road.—Roads are in a very bad state and dangerous.

Chester-Tarporley Road.—In very bad condition, and likely to cause danger to cars.

LANCASHIRE.—Members are requested to slow through Garstang, 10¾ miles north of Preston.

Members are requested to slow through Carnforth.

Lancaster-Keighley Road.—Members are requested to proceed with special caution through High and Low Bentham.

YORKSHIRE.—*Leeds District.*—The roadway is up in the front of the entrance to Wellington Station, for the purpose of laying cables. Controls are working at Moortown; Burley-in-Wharfedale and Ilkeley; between Arthington and Pool on the Otley-Boston Spa Road; in Chapeltown Road, Leeds, from Reginald Terrace to St. Mary's Road.

Harrogate.—Control working on the main road from Harrogate to Leeds just outside the Harrogate limit.

Leeds-Huddersfield Road.—Under repair half width for about 500 yards and members are requested to drive with care over the newly finished portions.

Otley-Burley-in-Wharfedale Road.—Care is needed here as the road is likely to be very wet owing to the recent floods.

EAST.

Members are advised to drive slowly through Brentwood.

SOUTH.

BATH ROAD.—Members are requested to proceed with special caution between Hounslow and Colnbrook, and to proceed slowly through Maidenhead.

BRIGHTON ROAD.—Members are requested to interrogate the Patrols at Kingswood cross roads. Timing between Reigate and Dorking. Roller working on Reigate Hill.

BUCKS.—*Eton-Slough Road.*—High Street, Eton, will be closed from August 12th to 24th, repairs; alternative route Keates Lane, Meadow Lane and Brocas Street.

KENT.—*Dover Road.*—Timing is likely to be in force at Bexley Heath, Shooter's Hill, Blackheath and Deptford.

LONDON DISTRICT.—On account of timing operations special care is necessary:—Regent's Park Road, near Church End Station, Finchley, Golder's Green, Redcliffe Gardens, the Boltons, Earl's Court Road, S.W., Victoria Embankment, near Albany Gate, Regent's Park, Mitcham, Morden, Sutton, Banstead, through Croydon to Purley, between Wimbledon and Ewell, Hounslow and Staines, Sunbury and Staines, Hounslow and Colnbrook, Putney Heath, Harlesden, Maida Vale, Highgate, Holloway, Lewisham High Street, also between Sudbury Tram Terminus and Harrow Hill.

MIDDLESEX.—Control working on Staines-Sunbury Common road.

Wood Green.—For the same reason special care is necessary near the junction of Bounds Green road and Jolly Butchers' Hill.

Controls like to be working at Hayes and in Uxbridge.

SURREY.—Controls are likely to be in force at the undermentioned points:—

At South Godstone Station; between Ewell and Epsom; at Surbiton; between Kingston and Leatherhead.

Dorking-Horsham Road.—Road approaching Ockley from Capel is dangerous and likely to be impassable.

SOUTHAMPTON ROAD.—Controls are worked at night through Egham. Tarring between Sunningdale and Bagshot and between Frimley and York Town.

SUSSEX.—*Easthourne Road.*—Members are specially requested to observe the 10-mile limit at Uckfield.

BARNSTAPLE.—Castle Street is being relaid and members should proceed *via* Boutport or High Street, for Ilfracombe.

WEST.

Exeter-Bodmin Road.—Members should beware of straying cattle on Bodmin Moor.

Shrewsbury-Holyhead Road.—Between 2nd and 3rd and 6th and 7th milestones.

Barnstaple District.—All roads in this district very bad owing to heavy rains, and members travelling towards Ilfracombe from Barnstaple are advised to travel *via* Braunton in preference to Pilton and Bittadon.

MIDLANDS.

Coventry Road.—Members are requested to slow through Redbourne, Fenny Stratford and Stony Stratford. Watling Street is in bad condition 12 and 14 miles north of Daventry for a few miles.

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Chauffeur's Experiences



Chauffeurs are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The Auto., 44, St. Martin's Lane, Charing Cross, W.C.

73.

Keep Open the Vent-Hole in Your Petrol-Tank.—A breakdown that in the end made both my boss and myself laugh at each other, had delayed us for some considerable time. For some unexplained reason the engine stopped, but neither of us could find anything wrong with it, but as it started quite easily and pulled well, we thought no more about it, until only five minutes afterwards the same thing happened again. I thought of water in the carburettor or in the petrol-pipe, but none could be found, and we both wasted a good deal of time and language. Everything else failing, I thought of having a look into the petrol-tank, which is under the front seats, but as soon as I lifted the seat-cushion, I burst out laughing, because the governor had put two maps under the seat right on top of the filler-cap of the tank, and being not exactly a feather-weight, he had pressed them down firmly, so that the air-vent was closed up and no petrol could flow out of the tank. Since then I have soldered the lid of a "Nugget" tin over the vent, and punched a few holes in the side of it, so that it cannot get blocked up, however heavy a person may sit on it.—*Tinker.*

74.

Peculiar Cause of an Engine Knock.—The other evening, when only a few miles from home, my engine started knocking just as if a big-end bearing had been "running out." I stopped, of course, and examined the engine as well as I could at the time, but I could not find anything that was indicative of such an occurrence, although I carefully turned the engine to and fro by the starting handle and the fly-wheel. Therefore I started up again, but although the engine knocked horrible, she pulled as well as ever, and taking this as a good sign, I ventured to drive the few miles home exercising the greatest possible care on the way there. I got home apparently none the worse, but I would not take the car out again without ascertaining the seat of the trouble. Much as I tried I utterly failed to find anything the matter with the engine, so I made up my mind to take it down and have a look inside. I first took the cylinders off but that revealed nothing, gudgeon-pins and big-end bearings were quite tight, and there was nothing in the engine casting to account for the weird noise. Next I dropped the lower half of the base-chamber, and had a good look at the crank-bearings, and also at the big-ends, but here again everything was snug and tight, all nuts firm and well pinned; no sign of a protruding big-end bolt touching the crank-case, as had happened before, through a washer falling into the engine and getting embedded in the aluminium just in the path of the big-end. I also tried the fly-wheel and its bolts, but they, too, were as tight as they could be. Well, I was fairly puzzled at not being able to find any trace of that awful noise, which I had thought, and had told the boss, would be quite simple to locate. I was so disgusted with myself that I simply "chucked" it for the night. In the morning I had another go at it, and first thought over very carefully what parts of the engine I had not yet examined. I remembered that an engine often knocks because one of its holding-down bolts is loose, but they were as firm as the proverbial rock.

Then all of a sudden I remembered the timing-gear, and here it was all right. My engine has inlet and exhaust-valves on opposite sides. The two cam-shafts run on brass bushes, which are held in the crank-case by means of screwed studs, with the spring-washers under the nuts. One of these studs had worked out of the casting, the washer had fallen off the stud, was caught by one of the timing wheels, which are made of fibre, and got embedded between the teeth. Every time the steel washer in the timing wheel came in contact with the pinion on the crank-shaft it gave a violent jerk to the cam-shaft, which, the front bearing being slightly loose, set up that fearful knock it had taken me nearly a day and a-half to trace.

Of course, the cure was quite easy. I packed the bush so as to bed it firmly in the aluminium, fitted a slightly thicker well-fitting stud, and the engine was all right again. Although this may not speak particularly well of my "powers of investigation," I am writing this for the purpose of saving other chauffeurs, who may find themselves in a similar predicament, all the trouble and worry I went through in this case.—*N.S.C.* 782.

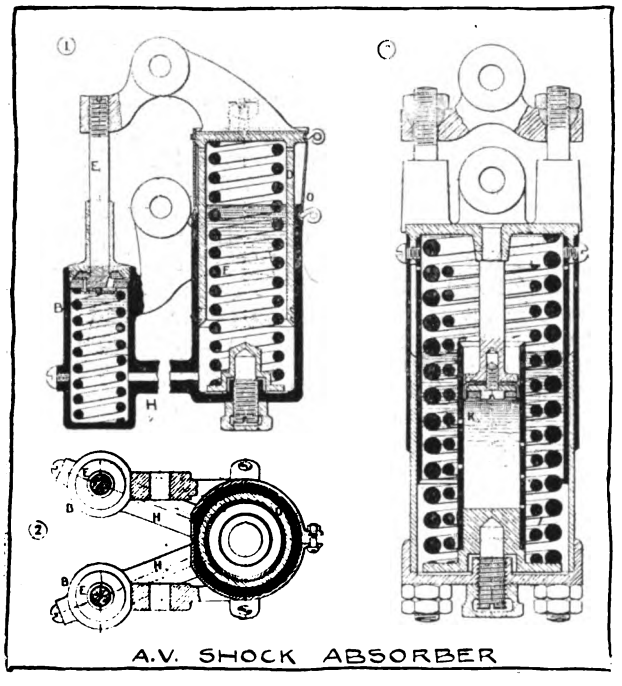
75.

Cure for a Leaky Radiator.—The following hint may be found useful by many chauffeurs, who at the present touring season may find themselves in an out-of-the-way spot with a leaky radiator. The radiator of one of my cars, a Humber, leaked in a few places which were very difficult of access. As I could not make a satisfactory job of it with the soldering-bit, and could neither spare the car, I resorted to the following dodge, which entirely cured the minute leaks, four in number, through which about three pints of water were lost every day. I bought a packet of pea-flour, and put about two ounces of it in a jug containing a quart of water. When stirred up well, I poured it into the radiator, and the mixture successfully sealed up the tiny cracks.—*E. Rickings, Wallingford.*

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FOREIGN MISCELLANY.

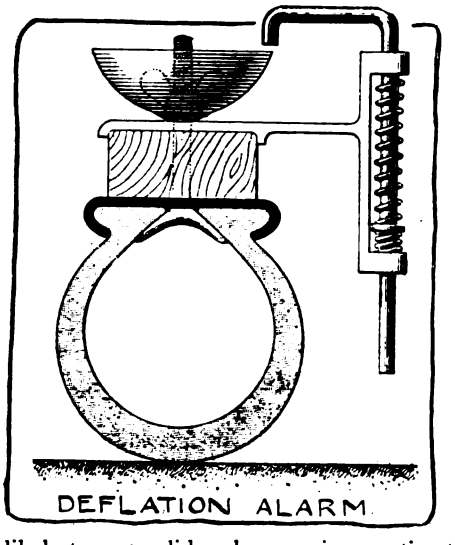
A new shock absorber.—Owing to exigencies of design it has frequently been impossible to fit auxiliary springs to the front springs. The apparatus which we illustrate herewith and which (like the Telesco) stands half-way between an auxiliary spring and the true shock absorber, is made in two different models, of which one is intended for use on the front and the other on the rear springs. The appliance consists of the usual oil damped spring, though there is some difference between the two models in this respect; in Fig. 1 the oil is driven out of the pump cylinder through the narrow passage, H, while in Fig. 3 it escapes through the numerous small openings, K,



situated at various heights in the wall of the cylinder. It seems to us that trouble is likely to be expected with the model shown in Fig. 1. The piston attached to the lower end of E is shown with a flap valve (probably intended for the return of any oil which may have leaked past the piston on the down stroke); the down stroke of this piston creates a vacuum above the latter and any air which is thereby drawn past the piston-rod, will be passed to the under side of the piston on its upward stroke through the valve shown. Thus air will be gradually pumped into cylinder, B, from which the oil will be expelled, whereby the proper action of the apparatus will be stopped.—*Omnia*, June 8th.

The utility of racing.—Manufacturers of the cars in the Indianapolis 500-mile race are to be congratulated on the excellent showing of safety in steering knuckle parts. It was the first big speedway meet ever held in America in which there were not broken steering knuckles, due to the long-continued vibration of the race. When cars can maintain speeds of practically 80 miles per hour for 500 miles over a brick surface without a single steering part giving way, the buyer who drives his machine at 35 or 45 miles per hour over variable roads has nothing to fear in this respect. Last year's race was a disgrace from the broken-steering-knuckle viewpoint, but last week's performance has almost obliterated the memory of that day. The car buyer is the man who profits, providing the car maker is putting as good material into his stock cars as in the racing machines, in these parts.—*Motor Age.*

A simple deflation alarm is illustrated herewith and explains itself. It seems to us that the apparatus would



be very likely to rust solid or become inoperative through an accumulation of dirt.—*Omnia.*

Humours of the American State automobile laws.—*Mississippi:* Title of the Act "An Act to Regulate the Running of Automobiles, Locomobiles, Autocars, &c." *Alabama:* "The rays of such rear lamp shall shine upon the number plate carried on the rear of such vehicle in such manner as to render the numerals thereon visible at least 50 feet *in the direction in which the car is proceeding.*" *Ohio:* "Any one who fictitiously represents himself as a chauffeur may be suspended from the right to operate a motor vehicle as a chauffeur for a period of 6 months." *Georgia:* "No one under 16 years of age may drive a car unless he shall have previously had 12 months' experience in the operation of automobiles." *West Virginia:* "Local authorities shall have power to exclude automobiles from cemeteries."—*The Automobile.*

Petrol prices in Germany.—From an article dealing with the subject in *Der Motorwagen* we gather the following details of the petrol tax as imposed in Germany. Spirit, of which the specific gravity is less than ·750, has a tax of 3·1*d.* per gallon imposed on it; if the specific gravity lies between ·750 and ·770 the tax is reduced to 1*d.* per gallon. In the case of the lighter spirit mentioned, the whole tax is remitted where the petrol is used in commercial vehicles (trucks, vans, omnibuses, taxicabs, &c.), provided the quantity used does not exceed 10,000 kilos. (equal to 3,000 gallons of ·720 specific gravity) per annum. For the information of our readers we may add that the present price in Germany is 2*s.* 3*d.* per gallon for light spirit, 1*s.* 9*d.* for heavy spirit, and 1*s.* 7¼*d.* for 90 per cent. benzol.

MAXIMS.

Keep two distinct sets of washing utensils for your car. One to be used above the mud-guards, the other below.

Never under any circumstances, allow cyclists to hang on. If needs be, you may be rude to a hanger on.

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RACES, RECORDS AND TRIALS.

Pateley Bridge Hill-Climb.

WHEN bad weather was the rule on Saturday last, the Yorkshire A.C. were favoured with ideal conditions for their annual hill-climb at Pateley Bridge. The event attracted a large crowd of spectators, who took up their positions at the start and finish and on the banks lining the course. The competition was a keen one, and the excellent organisation permitted the result of each climb to be shown very shortly after the car had crossed the finishing line. In the open event, the runners were one short of a score, first prize was taken by Mr. R. S. Witchell on his 15-h.p. Straker-Squire car, and the second by Mr. C. Bianchi, driving Mr. W. M. Letts' 15-h.p. Crossley. Two competitors tied for fastest time, these being Mr. Louis Coatalen on his 12–16-h.p. Sunbeam and Mr. J. Higgins on his 80-h.p. La Buire. Mr. N. F. Bayliss on his 12–16-h.p. Sunbeam, made second best time. In Class B, which was for members of the Yorkshire A.C. and recognised clubs in the county, out of the seventeen competitors Mr. R. S. Witchell was again first, with Mr. R. Wilkins on a 20-h.p. Vauxhall second, and Mr. E. Genna on a 12–16-h.p. Sunbeam third. In Class B the fastest time was made by Mr. J. Higginson, but he was slightly slower than in his previous run; Mr. N. F. Bayliss's Sunbeam made the second fastest run.

New Record by Stoewer Cars.

AT Brooklands last week Mr. Turner Smith put his little 13·9-h.p. Stoewer car which won two races at the last Brooklands meeting, at the Standard Class records, two of which it already held. The car was running in tip-top form, and in the three short records showed a speed of well over 60 miles an hour, and over half the distance of ten laps record had been covered at 61 m.p.h. when a heavy storm necessitated a stop. Mr. Turner Smith, however, will make another attempt very shortly. The times and speeds accomplished were: half-mile, 28·55 sec. (63·07 m.p.h.); kilom., 35·49 sec. (63·03 m.p.h.); mile, 57·31 sec. (62·81 m.p.h.). All these were attained with standing start, and we understand that the car was equipped with the standard gear ratio.

A Welsh Hill-Climb.

THE results of the Hill-Climb on Philadelphia Hill, Carmarthenshire, on July 18th, which have just been published show that Clement Talbot cars scored a sweeping victory, taking the first three places. Mr. E. E. Fletcher's Talbot was first, securing the Hughes Morgan Challenge Cup. Mr. B. W. Valentin's Talbot was second and Mr. C. V. Lewis' Talbot third. In the motor cycle class Mr. W. Davies Sutton was first on a Triumph and Mr. E. T. Strick on a Triumph sidecar was first in the sidecar class.

R.A.C. Tests with Cadillac Cars.

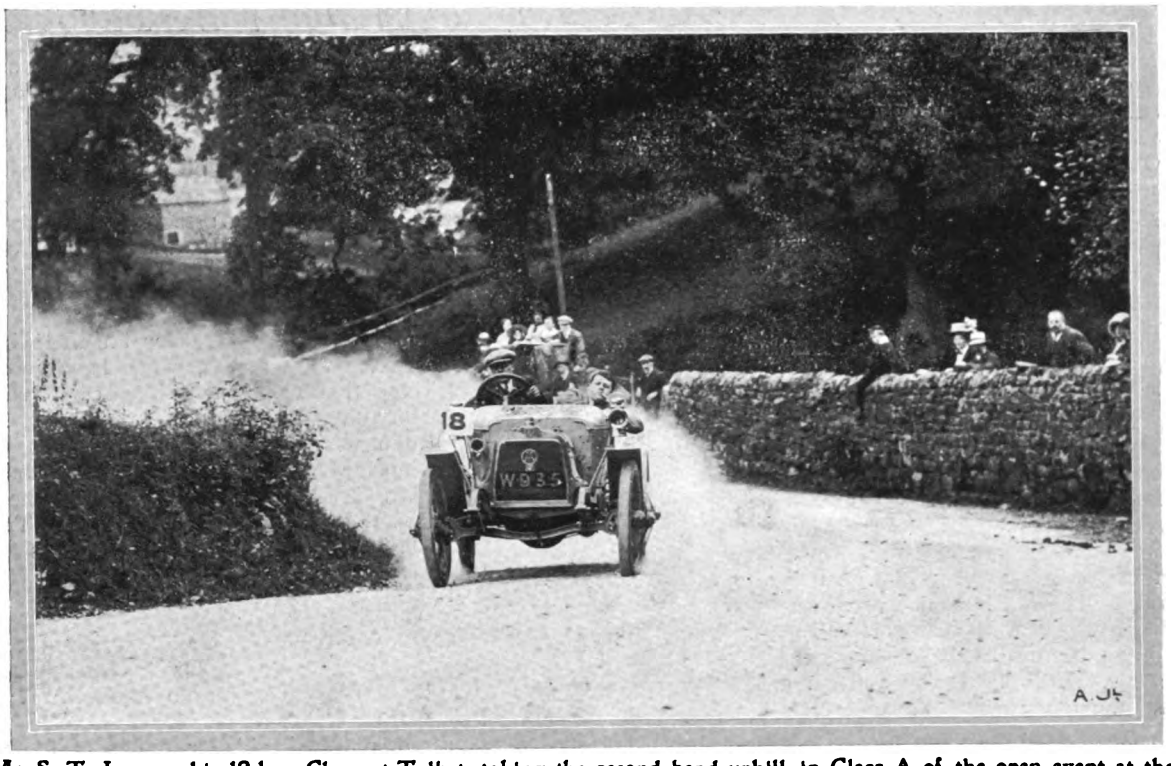
FOLLOWING up the account of the trial of the self-starters on the Cadillac cars, in our issue of July 20th we now give the official report from the R.A.C. which states:—

Three cars were tested. The numbers of fifteen cars were handed to the Club, of which three were selected and the cars placed under observation. After selection the electrical controllers and batteries were fitted. The three cars were then timed for the initial starts. These times were $4\frac{1}{5}$ sec., 3 sec., and $4\frac{1}{5}$ sec. respectively. The



YORKSHIRE A.C.'S HILL-CLIMB AT GREENHOW HILL, PATELEY BRIDGE.—Mr. R. S. Witchell, on his 15-h.p. Straker-Squire, passing the Lodge after the start. This car secured first place in Class A (open) and Class B, for members of the Y.A.C. and kindred clubs.

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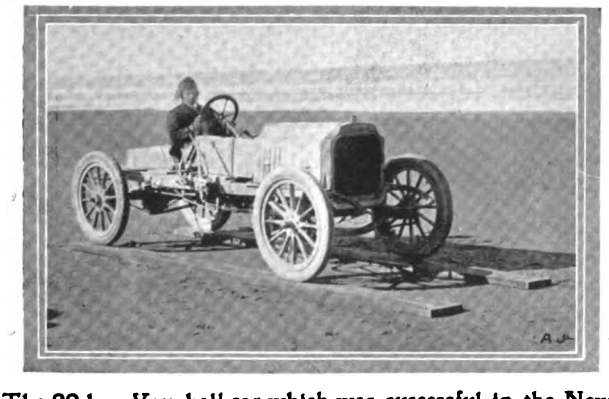


Mr. S. T. Lea, on his 12-h.p. Clement-Talbot, taking the second bend uphill in Class A of the open event at the Yorkshire A.C.'s hill-climb at Greenhow Hill, Pateley Bridge.

throttle and ignition positions of the cars were then set to a fixed position and one thousand starts per car were made. The interval between each start was approximately 10 secs., and each engine was allowed to run under its own power for, approximately, 2 secs. after it had commenced to fire. The engines were stopped in each case by switching off. The ignition control was set in such a position that it was not possible to start "on the switch."

The approximate average time taken for each engine to start after depressing the clutch pedal was $\frac{4}{5}$ second.

The 1,000 starts were made without any hesitation at any time, and on no occasion did the starter fail in operation.



The 20-h.p. Vauxhall car which was successful in the New Zealand A.A. Speed Trial at New Brighton Beach, near Christchurch, in March this year. Mr. J. W. Scott, who is at the wheel, is a member of the Vauxhall agency in N.Z. In the race Mr. J. W. Scott obtained on the sand an average of 62 m.p.h. over the five-mile course, winning by 16 secs.

The voltage of the batteries of the three cars before the trial was 24·8, 25·8 and 25·1 respectively, while after the 1,000 starts it was 24·79, 25·28 and 24·60 respectively.

The A.C.U. Annual Trials.

Of the 130 entrants in the annual Six Days' Trial of the Auto Cycle Union there were only four absentees at the start at Taunton last Monday morning. During the week the headquarters have been at Taunton and out and home journeys of between 150 and 200 miles have been made each day. On Monday the route was to Plymouth and back, Tuesday it was to Lynmouth, Wednesday to Gloucester, Friday to Bournemouth, Saturday to Exeter, while the course for Thursday was a secret one. The competing machines included 126 motor cycles, and twenty-two passenger machines, including five cycle cars. Among the cyclists are two ladies—Miss Hammett and Mrs. Hardee—and although the starting order each morning was the same as the finishing order of the previous evening the competitors gallantly agreed to allow the ladies to start first each day. A tyre trial has been held simultaneously and fifty sets of various makes of tyres have been undergoing observation.

Racing at Brooklands To-Day.

Arrangements have been made by the Essex Motor Club to hold a race meeting at Brooklands this (Saturday) afternoon commencing at three o'clock. The programme consists of three car events—a hill-climb, and handicaps over three and five laps—and a similar number of motor cycle items, including a side-car race and races over two and three laps. The car entries are:—G. D. Pearce Jones (20·1-h.p. Vauxhall), A. P. Howard (15·9-h.p. Calthorpe), W. G. Brown (15·9-h.p. Hispano Suiza), O. D. Pollak (15·9-h.p. S.C.A.R.),

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F. Street (15-h.p. Stoewer) F. Street, (13·9-h.p. Stoewer), Mrs. Goldie (12-h.p. Delage), Mrs. Cummings (15·9-h.p. S.C.A.R.), G. Hickox (15·9-h.p. La Buire), F. G. Smith (12-h.p. De Dion), S. G. Cummings (13·9 h.p. Crespelle), F. B. Goodchild (13·9-h.p. Oryx), C. A. G. O'Malley (11·8-h.p. M.A.F.), C. R. Engley (24·8-h.p. Turcat-Mery), L. G. Hornsted (13·9-h.p. Mass).

Climbing Mont Ventoux.

IN weather which was anything but pleasant owing to the cold wind and rain, the annual climb on Mont Ventoux was carried out on Sunday last, and Boillot on his Peugeot car succeeded in beating Bablot's record of 18 mins. 41 secs., which has stood for three years. Boillot's time was 17 mins. 46 secs. and Deydier on his Cottin-Desgouttes car, which was second fastest, was also at 18 mins. 38⅘ secs. inside record time. Very few touring cars took part, and the winners in the four touring classes were a Cottin-Desgouttes, a Schneider, a C.I.D., and an Apollo. Among the racing cars, apart from those already mentioned, Hispano Suiza won two classes, as also did Bugattis, and the other winners were a F.I.A.T., an Aquila, an Apollo and a Lion-Peugeot. Among the cycles a Rudge-Whitworth, ridden by Vernon Taylor, was entered, and it won second place in the first class.

MOTOR BOATING.

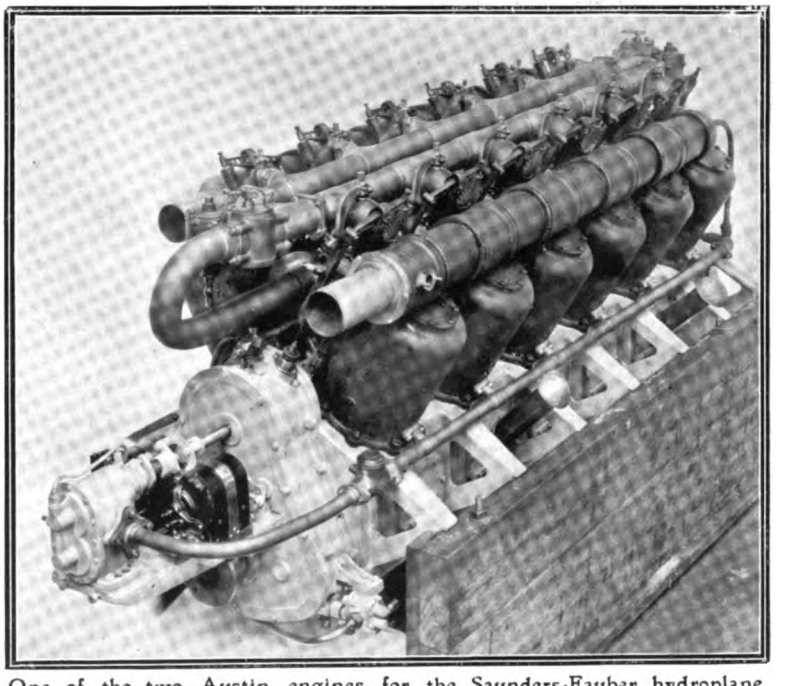
British International Trophy.

DURING the present week, the Marquis of Anglesey's "Mona" and Mr. E. Mackay Edgar's "Maple Leaf IV" have been shipped to America, to take part in the races for the British International Trophy. "Milmar," the third boat of the team chosen to represent this country in the contest will not be sent over after all, her owner, Mr. Norman Neill, having, with much regret, decided to withdraw her.

Motor Boating at Cowes and Ryde.

THE British Motor Boat Club were able to make a start with their racing at Cowes on Thursday of last week, when an event for cabin cruisers was run off over a course of about six miles simultaneously with a race for the under 10 knot boats under M.M.A. rating. In the former the Earl of Hardwicke's "Spring Maid" was the winner with Mr. W. N. McClean's "Allegro" second, while Mr. G. Paxton's "Braemar" won the prize under M.M.A. rating and time scale, with "Spring Maid" taking second prize and "Allegro" third. A handicap for motor dinghies under 18 ft. was secured by Mr. Miller Mundy's "Narcissus." On the following day the weather still further improved, and a full programme of races was completed. The cabin cruisers were sent round the Isle of Wight for the Rhinefield Challenge Cup, this being secured by "Braemer" with "Allegro" second, the winner taking 6 hrs. 7 mins. Only Dr. Morton Smart's "Angela" appeared for the double race for the 21 ft. restricted class, and after going round the course she was awarded both first prizes. The handicap for boats over 10 knots was a fine race and ended in victory for the scratch boat, Mr. Mawdsley Brooke's "Baby VI," with Mrs. Edgar Thornton's "Columbine" second, and Capt. Pierce's "Falcon" third. In the race for boats over 20-knot speed the Duke of Westminster's "Ursula" was seen out, and she was set to give 4 mins. 51 secs. to "Columbine" and 1 min. 18 secs. to "Baby VI," but "Columbine" finished the winner with "Baby VI" taking second prize. Several of the faster boats were also out in the fifth race, which was for boats over 10 knots. In this "Angela" was the victor, with "Baby VI" taking second prize and "Falcon" the third. A race for the R.M.Y.C. restricted class fell through as none of the entrants were able to get over from Netley, and the final event was a race under M.M.A. rating, in which "Columbine," Mr. T. Desnos' "Secret" and Mr. Hollingsworth's "Cordon Rouge" took part. "Columbine" finished first, but as her rating was not known the result could not be given.

On Saturday the scene was shifted to Ryde, and although the rain made things somewhat uncomfortable, some good racing was seen. Half a dozen boats turned out for the cabin cruisers' race, in which, subject to protest, "Allegro" was the winner, with Mr. Harry Tate's "Mimic" second, losing by only 5 secs., and "Braemar" a very good third. Contrary to what had been done at Cowes the time allowances were given at the start, and some very close finishing was seen. In this event, for instance, the first four boats finished within half a minute. The handicap for boats over 10 knots also ended in splendid fashion, "Falcon" only leading across the line by 3 secs., with Mr. Douglas Hall's Wolseley-engined "White Spray" second and "Columbine" third. "Ursula" and "Columbine" ran off a match over a



One of the two Austin engines for the Saunders-Fauber hydroplane belonging to Mr. E. Mackay Edgar. Each engine is of 300-h.p. Crank-cover and crank-shaft are the same as those used in last year's boat, but for the new one—"Maple Leaf IV"—the cylinders, cam-shaft, &c., have been entirely re-designed at the Austin works. The makers of the engines hope, and many will join in the aspiration, that "Maple Leaf IV" will bring back the International Cup from America next year.

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course of 21·4 nautical miles, but unfortunately the helmsman of "Ursula" mistook the East Sturbridge buoy for the West Sturbridge buoy, and "Columbine" was able to finish first with 1 min. 12 secs. to spare. "Angela" again had a walk-over in the race for the 21-ft. class, while in the handicap for all comers "Falcon" won by 2 mins. from "Mimic," with "Secret" third.

Sea Mile Record Contest.

On Wednesday last, when the postponed Sea Mile Record Contest for the *Motor Boat* Trophy was to have been held, only the Marquis of Anglesey's "Mona" was on the station, and as Mr. Batting did not wish to run the boat in the absence of the other entrants—Lord Montagu's "Carina" and Mr. Mawdsley Brooke's "Baby VI"—which were unable to get over to Netley, the trials were indefinitely postponed. It is possible the Royal Motor Yacht Club will arrange for the trials to be held towards the end of the season.

Practical Gift to R.M.Y.C.

In order that a better service may be had between the Enchantress, the floating club house of the Royal Motor Yacht Club, and Netley Hard a member has offered to present to the Club a motor, on condition that another member or members will provide a suitable hull.

Trans-Atlantic Motor Boat Trip.

Late in the evening of the 7th inst. the motor boat Detroit, in charge of Capt. Day, with a crew of three arrived at Queenstown *en route* for St. Petersburg. Twenty-four days had been taken for the trip of 2,800 miles from New York, and during that time some very rough weather was encountered.

Steam-Rolled-Road Map of Ireland.

Those maps which generally prove most useful to tourists are those which are arranged by people who know the roads, and we welcome a map of Ireland which has been produced by Mr. R. J. Mecredy, than whom there is surely no more inveterate road user in the Green Isle. The map is in two sections, one showing the north and the other the south of Ireland, and its principal characteristic is that it shows the roads which are steam-rolled, so that the tourist can select routes which will give him a maximum of smooth surfaces. At present the majority of these roads are in the north-east, in the counties of Down, Antrim, Derry, Tyrone and Armagh, and, of course, Dublin, but the movement is developing rapidly all over the country, and among others the counties of Mayo, Galway, Kerry, Cork, Sligo and Donegal have embarked on ambitious schemes, so that the mileage of steam-rolled roads should increase at a much more rapid rate in the next two years. To meet this condition of affairs a new edition of Mecredy's "Steam-rolled Road Map of Ireland" will be published at the beginning of each season for the purpose of including the hundreds of miles of steam-rolled roads which will have been added to the total during the twelve months. On paper these maps cost 1*s.* 1*d.*, post free, or on linen 2*s.* 1*d.*, and they can be obtained from Messrs. Mecredy, Percy and Co., 34, Lower Abbey Street, Dublin, or they can be procured through any bookseller.

Port of London Authority Ambulances.

In the description, in our issue of the 10th inst., of the motor ambulances recently acquired by the Port of London Authority, we stated that these were supplied through Messrs. Markham and Prance. This is, perhaps, slightly misleading as Messrs. Markham and Prance, acting in their capacity as consulting motor engineers to the Port of London Authority, devoted their professional services to supervising the specification, tests, and the building of the ambulances, acting in a professional capacity only in this case, the vehicles not being supplied through them.

PUBLICATIONS RECEIVED.

A Man and a Motor. By R. W. Bradshaw Needham. London: St. Clement's Publishing Co., Portugal Street. Price 6*d.* net.

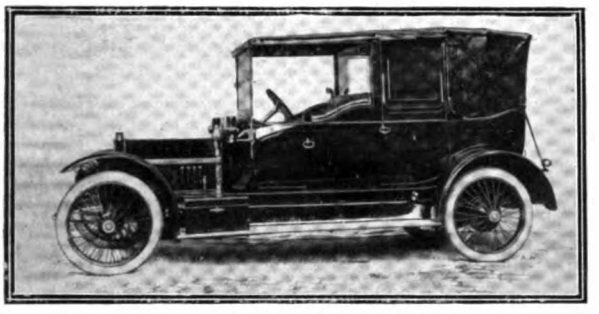
The Demon. By C. N. and A. M. Williamson. London: Methuen and Co., Ltd. Price 1*s.* net.

"The Autocar" Road-Book. By Charles C. Harper. Vol. III: *East Anglia and East Midlands.* London: Methuen and Co., Ltd. Price 7*s.* 6*d.* net.



As our readers know, all Sheffield-Simplex cars are put through a severe course of hill-climbing in connection with their testing before being passed on to their owners. The above is a batch of these very fine "S.S." cars off to the Derbyshire hills and the Pennine Range for their special climbing tests, this home of formidable ascents being close to the Sheffield-Simplex factory.

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A handsome and comfortable cabriolet on a 15-h.p. Crossley chassis. The wheel base is 10 ft. 4 ins.

ROUNDABOUT NOTES.

WE have been requested by the Dunlop Tyre Co. to mention that the wheels used by the Minerva team in the Grand Prix of Belgium, in which the three cars went through two days' vigorous test without dropping any points and tied for the cup presented by His Majesty the King, were Dunlop detachable wire wheels—not those of another make as previously published. The Dunlop wheels were reported by the winning drivers to have been "very satisfactory."

AFTER his two and a half-year old 22-h.p. N.B. self-starting S.C.A.T. car has done 22,000 miles, much of it over very hilly country, Mr. J. J. Kershaw, of Chiddingfold, Surrey, writes: "It has given me every satisfaction. The great thing about it is its reliability. I have never been stopped on the road for any mechanical troubles, with the sole exception of the air pressure-reducing-valve once going wrong, and which took me about ten minutes to disconnect. As for the N.B. self-starter, I am delighted with it; it has never failed me, and has received no attention from me."

IN consequence of the extensive business that is being done in Australia with the Polyrhoe carburettor, the Polyrhoe Co. have decided to send Mr. Prichard to Melbourne, where he will take up his residence in the interests of the Co. Mr. Prichard has already sailed, and it is expected that he will arrive in time for the Melbourne Motor Exhibition, which opens on August 31st. He will also represent Telesco shock absorbers "down under."

WE learn from the Simms Magneto Co. that Mr. Frederick R. Simms arrived from the States per the ss. "Olympic" on the 3rd inst., and that he expects to remain in England for upwards of a couple of months, in order to give personal attention to the development of the Simms Co. in this country.

IT does not appear to be generally known that barring pneumatic tyres, magnetos, and carburettors, the entire Argyll car is built from the bar and the log, under roofs covering about 18 acres at the Argyll Works, Alexandria. The machine shop alone covers 4½ acres under one roof, and adjoining is a fully equipped laboratory, under the charge of qualified chemists. The stamping house and the foundry have each been enlarged, and at present turn out all the stampings and castings used in the Argyll sleeve-valve car.



Not a lady going to a fancy dress ball, but just a charming little Japanese lady stepping out of her 16-20-h.p. Wolseley landaulette in the environs of Tokyo, Japan.

MESSRS. PERCY LAMBERT AND WORGER, LTD., of 48A, Palace Street, Victoria Street, London, S.W., have been appointed sole London agents for Singer cars.

A FEW interesting details are to hand of a 1,800-mile tour in the Highlands recently completed by the Editor of the *South American Journal* on his Siddeley-Deasy car. During the run, the car which now has 7,000 miles to its credit was never once on bottom gear, while there were only two involuntary stops, one for a tyre and the other for a broken belt on the Speedometer drive. The start was made from London at 3.20 a.m., and the time of arrival at Edinburgh was 6.10 p.m. the same day—an average speed of 34 miles per hour, a most excellent performance. Mr. Brewer writes: "I am exceedingly well pleased with the Siddeley-Deasy much more so in fact than I have ever been with any of the four I have previously owned."



BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1912.

In the trade returns for January, 1909, for the first time, *real* annual import and export trade totals were comparable, as, prior to 1908, no record was made of cars of travellers either coming into or leaving this country, the values and numbers being simply included in the export and import figures.

NOTE.—In our issue for January 13th, 1906, we published in one table the full figures of British Exports and Imports for 1902, 1903, 1904, and 1905. Prior to 1902, motor cars were not classified separately. In the issue for January 12th, 1907, the complete figures for 1906 were published; for 1907 in January 11th, 1908; for 1908 in January 16th, 1909; for 1909 in January 15th, 1910; for 1910 in January 14th, 1911; and for 1911 in January 13th, 1912.

JULY.	1911. July.		Seven Months ended July.		1912. July.		Seven Months ended July.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
IMPORTS.								
		£		£		£		£
Cars ...	632	163,986	4 011	1.057,292	466	126,556	5,449	1,248,260
Chassis ...	549	148,317	4,176	1,085,953	763	210.326	4,582	1,136,761
Parts ...	—	243,395	—	1,468,630	—	260,839	—	1,887.443
	1,181	555,698	8,187	3,611,875	1,229	597,721	10031	4,272,454
Motor cycles	82	2,971	1,015	31,499	127	4.857	920	29,685
Parts ...	—	7,267	—	40,680	—	13 444	—	70,736
	1,263	565,936	9,202	3,684,054	1,356	616,022	10951	4,372,875
EXPORTS.								
Cars ...	264	103,686	2,182	876,633	384	148,950	2,576	999,964
Chassis ...	53	23,287	385	162.556	85	33,204	606	226.699
Parts ...	—	73,548	—	620,401	—	99.197	—	673.562
	317	200,521	2,567	1,659,590	469	281,351	3,182	1,900,225
Motor cycles	632	24.441	3,258	120,289	1,045	43,148	5,976	238,459
Parts ...	—	5,249	—	35,642	—	13.051	—	87,238
	949	230.181	5,925	1,815,521	1,514	337,550	9,158	2,225,922
FOREIGN AND COLONIAL RE-EXPORTATION.								
Cars ...	86	25.430	558	149,287	54	13 670	471	148,260
Chassis ...	36	12,038	144	45,248	29	9,576	333	92,289
Parts ...	—	14,865	—	129,335	—	23,921	—	144,734
	122	52,333	702	323,870	83	47,167	804	385,283
Motor cycles	17	640	58	2,147	7	353	70	2,983
Parts ...	—	431	—	2,817	—	804	—	4,833
	139	53.404	760	328,834	90	48,324	874	393,099

Note.—Total number of cars (including touring and other cars not for sale) during July, 1912—

Imports—975 (total for 1912, 7,552), value £470,996 (total for 1912, £2,611,752).

Exports—569 (total for 1912, 3,419), value £261,355 (total for 1912, £1,512,485).

Foreign and Colonial re-exports—205 (total for 1912, 1,081), value £108,639 (total for 1912, £536,642).

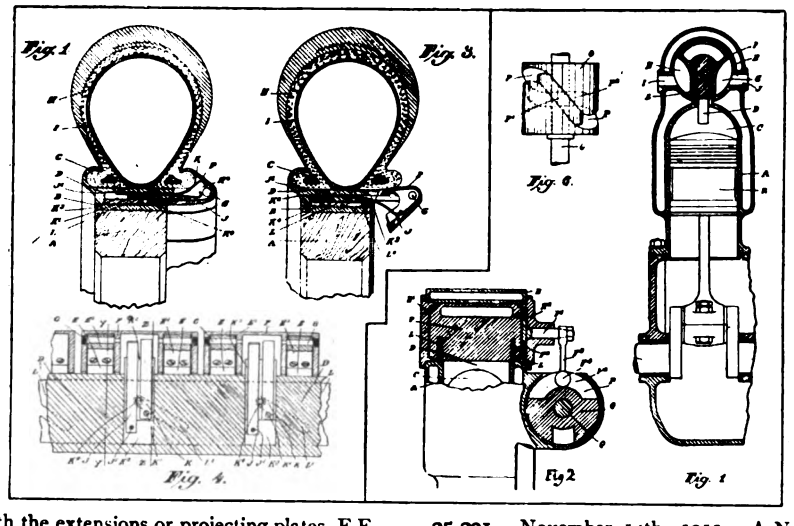
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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application ; the second, at the end, the date of the advertisement of the acceptance of the complete specification

18,570. August 17th, 1911. An Improved Motor Car Wheel Rim. John Sandland, 8, Broughton Road, West Ealing, W.—This invention relates to a collapsible sectional outside flange for a motor car wheel rim that shall permit of the tyre being easily and quickly removed from, and easily and quickly replaced upon the rim of the wheel. Fig. 1 is a radial section of the tyre and cover showing the segmental hooked flange in position for securing the tyre, the section of the segment is on the line Z Z of Fig. 4. Fig. 3 is a section of tyre showing the hooked flange segment dropped or turned on its pivot in order to remove the tyre. Fig. 4 is a section parallel with the rim through the segments showing the arrangement of the springs when the segments are in the holding position as in Fig. 1. A is the felloe, B is the steel tyre band shrunk thereon in the usual manner surrounding the felloe, D is the rim rigidly secured thereto having the one hooked flange, C, integrally formed therewith. The rim, D, is rigidly secured in any suitable manner to the steel tyre band, B. The rim, D, is provided on the other side with the extensions or projecting plates, E E. The other hooked flange is formed in segments, F F, each of which is pivotally mounted on the pins, G G, one at each end of each segment. The pivot pins, G, are formed as screws for convenience of removal, and more readily securing, and are fitted in separate plates, E^1, held by screws to the plates, E, which are integrally formed with the rim, D. H is the tyre cover, and I the inner tube, which are both of usual construction. Each of the segments is provided with two plate springs, J, K. The spring, J, is secured to the underside of the rim, D, by means of the screw or rivet, J^1. The plate spring, K, is secured at the end by the screw or rivet, K^1, to a rectangular plate of metal, K^2, which is adapted to slide outwardly in the rectangular recess, K^3, provided for it in the hollow rim, D. To operate the plates, K^2, one of which is provided for each segment, F, the plates are provided with a cam pin and roller, K^4, which fits a slot, L^1, in the ring or hoop, L. The ring or hoop fits in the annular recess, L^2, in the rim, D. The hoop or ring is provided at suitable intervals to correspond with the length of the segments, F, with the oblique cam slots, L^1, and when given a movement of rotation within the annular recess, L^2, operates simultaneously all the plates, K^2. The movement of partial rotation given to the ring, L, will be to that extent only necessary to move the pin and roller, K^4, from the one end of the cam slot to the other. When the pin and roller, K^4, are at one end of the cam slot, L^1, the plates, K^2, will be withdrawn into the recess, K^3, and when the pins and rollers are at the other end of the cam slots, the plates will be thrust outwardly toward the hooked flange, F, and will carry with them the springs, K. The springs on being released press upwardly against the upper surface of the segments, F, at the same time the springs, J, being raised out of operation by the plates, K^2, cause the segments, F, to spring upwardly into the position shown in Fig. 1. On the plates, K^2, being withdrawn, the springs, K, are drawn inwardly out of operation, and the springs, J, being released press downwardly upon the segments, causing them to fall into the position shown in Fig. 3, on the bead of the tyre being pressed inwardly to release them —July 24th, 1912.



25,291. November 14th, 1911. A New or Improved Semi-Rotary Valve for use in Internal Combustion Engines. D. J. Sweetzer, 38, Holdenhurst Road, Bournemouth.—This invention relates to an improved construction and arrangement of valve for four-stroke cycle internal-combustion engines and to the means for operating same. Fig. 1 is a sectional elevation of one cylinder of an engine showing the valve and its casing in transverse section. Fig. 2 is an end elevation of the engine with the valve in longitudinal section and the cam in transverse section. Fig. 6 is an elevation of the cam with a portion of the half-speed shaft. A is the working cylinder, B is the piston, C is the combustion chamber. D is the port between the combustion chamber and the valve-casing, E. The valve casing, E, is cast integrally with the cylinder, so that the jacket of the cylinder is continuous with the jacket of the casing. The bore of the casing, E, is cylindrical and has fitted therein the valve, F. The ends of the valve are also cylindrical and have a working fit within the casing, E. Portions of the valve are cut away on each side of it forming the recesses or channels, G, H, in the valve. I is the inlet port from the carburettor or other means of supply for the new charge. J is the exhaust port. The valve casing is closed at each end by the covers, E^1, E^2, secured in any suitable manner to the casing, E. The cover, E^2, is provided with a bearing at its centre in which is fitted the short shaft or spindle, F^1. The spindle has a disc or plate, F^2, at one end, rigidly secured by screws to the valve, F. At the other end of the spindle is the arm or lever, F^3, secured by means of a tapered or angular hole in the latter and a closing nut. The valve, F, has a deep groove, K, of rectangular form which is of such relative form and size that it completely surrounds when in position the port, D. Within the groove, K, is fitted the rectangular packing, L. The packing, L, fits and is capable of a sliding movement within the groove. At the bottom of the groove, K, at suitable intervals, are provided holes in alignment with, or parallel with the groove, into which are fitted springs. M, loosely fitting the holes. The springs always press the packing, L, outwardly and upon the inner surface of the casing or cylinder, E. Referring to Fig. 6 the endless groove, P, is formed in the cylindrical or peripheral surface of the cam. The cam is mounted on and rigidly secured to the half-speed shaft, Q. The shaft, Q, may extend the length of the engine in a multi-cylinder engine and be adapted in a like manner to that shown to operate the valve of each of the cylinders. The lever, F^3, has integrally formed therewith the ball, F^4, which is adapted to fit within the groove, P. As the cam rotates it oscillates the arm, F^3, and therefore the valve, F. During the exhaust stroke the valve, F, is turned in the casing, E, so that the recess or passage, G, in the valve registers with the port, D, and thus provides a channel for the exhaust gases between the ports D and J. At the end of the exhaust stroke the valve is rapidly oscillated or turned in the opposite direction by the agency of the portion of the groove, P^1, in the cam, O, and the recess or passage, H, in the valve registers simultaneously with the port, D, and the port, I, and the new charge is drawn into the cylinder through said ports by the said passage or recess, H. The portion, P^2, shown dotted, of the groove, P, holds the valve stationary in the position shown in Fig. 1, closing the port, D, during the compression and the explosion strokes.—July 24th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published August 15th, 1912.

16,799. A. M. IRISH. Clutch and gear-changing device.
16,879. WOLSELEY TOOL AND MOTOR CAR CO., LTD., AND A. A. REMINGTON. Suspension.
16,936. FORD MOTOR CO. Change-speed gear
17,343. A. G. SPENCER. Springs.
18,241. A. BILARD AND P. J. L. TOUILLER. Rotary explosion motors.
18,440. E. G. STAUDE. Transmission.
18,828. G. H. ILLSTON AND H. A. SMITH. Valve mechanism.
19,878. C. E. MEAD. I.C. engines with rotary valves.
21,755. W. H. MOORE. Magnetos.
22,475. C. T. B. SANGSTER. Compression in I.C. engines.
25,747. E. F. AND G. W. GOODYEAR. Detachable rims.
27,198. W. CROSSLEY. Shock-absorbers.
27,506. L. HAUBNER. Cyclinders of I.C. engines.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 607. (No. 34, Vol. XVII.)] AUGUST 24, 1912. [Weekly, Price 3d. Post Free, 3½d.



One of the spots passed through by the competitors on the third day in the Six Days' Auto Cycle Union Trial. A view of Cheddar, showing these famous cliffs in the background.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
	s. d	s. d.		s. d.	s. d.
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Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

An R.A.C. Carburettor Trial.

According to a minute of the R.A.C. Expert and Technical Committee, conditions are now in course of preparation for the carrying out of an extended test of carburettors. The genesis of the trial lies in the offer of a prize of the handsome value of £500 made to the Club by Mr. G. K. Chamberlin, the founder of the Automobile Club of America, for the best carburettor as determined by the tests of the Technical Committee. The offer of this prize and the unanimous decision of the Committee to accept it and organise the trial comes at a singularly opportune moment. Fuel and its price is the all-absorbing topic of discussion, not only in the columns of the Press devoted to motoring interests, but in the clubs and throughout motoring circles generally. Intimately bound up in the question is the matter of the most efficient carburettor, inasmuch as carburettor efficiency means economy in fuel consumption, which is an all-important aspect of the matter with fuel prices at their present figures and with every prospect in view of a still further advance.

The sum available is generously large and might in justice be divided for the encouragement of heavy fuel carburettors as well as those for using petrol, but although this would doubtless appeal to many enthusiasts, for our own part we believe that most at the moment is to be gained from the creation of a strong incentive for engineers to get to the bottom of the petrol carburettor with a view to establishing certain basic principles such as will facilitate the more economical use of petrol by the average driver under average touring conditions and in average weather. If, at the same time, such devices make it easy to carburette satisfactorily the less light of the "lighter fractions," so much the better: the specific gravity of petrol has not tended to diminish these last few years, and we have, apparently, to make up our minds to the use of a heavier, as well as a more costly, spirit. Speaking of paraffin, many who idealise it at a distance have yet to see the signs of the "feet of clay," which make some people tell us that they would still use petrol at its present price if they could get paraffin for nothing and a perfect carburettor to use it in withal. The volatility of petrol is a great point in its cleanliness, and any yachtsman who has had trouble with a Primus stove will give a vivid account of the drawbacks of a fuel that smells and does not evaporate.

Every motorist is surely agreed that we might at least know more than we do on the subject of carburation, and for our own part we shall consider that Mr. Chamberlin's prize will have fulfilled its purpose to the full if it teaches us one or two new facts clearly. That it should mysteriously bring to light some perfect and unknown device is hardly to be expected, scarcely, indeed, to be hoped—the evolution that is slow but sure is the most apt to be lastingly useful. A carburettor, like a hat, may be very pretty to look at, but as an accessory its true effect is but part of the whole. We have noticed in the course of a fairly varied experience of different cars that different carburettors suit different cars, and some that are very good on one machine are very bad on another. In so far as a limitation is a defect, such carburettors are defective, but it does not make them anything but very good carburettors when they are used on the right engines all the same. And so, we say once more that if the prize is a means of adding to our little knowledge on the subject, the automobile world ought to be fully content, and fully grateful to Mr. Chamberlin for the opportunity.

If the R.A.C. see fit to make any special experiments on this occasion, we would very humbly suggest one that we have long desired to see properly tried, namely,

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the thorough washing of the air before it is admitted to the mixing chamber. There may be nothing in the idea, but there may be a good deal. Engineers who have to do with air-compressing machinery know how much dirt there is in the atmosphere, and think it well to wash it out for the sake of the efficiency of their machinery. Any member of the R.A.C. who desires evidence on the subject needs only to look at the sludge which comes from the washing room, where the air for ventilating purposes is "scrubbed" before it is blown by fans into the principal rooms. There is an old superstition among motorists that engines run better during a certain period of the evening, that is, approximately about dew-time, and as our own "imagination" on this matter has the persistency of fact, we have been wont to wonder whether the phenomenon had by chance any relationship to a possible temporary cleansing of the air by the precipitated moisture.

◆ ◆ ◆

Free Legal Defence and the Motor Cyclist.

It appears to have dawned upon the executives of the R.A.C. and the A.A. alike that a paper membership is not of necessity an infallible sign of strength. Indeed, it is quite conceivable that under certain circumstances quite the reverse may be the case. Both these bodies have gone out to gather the motor cyclist in his numbers within the gates of the two respective organisations, offering him, doubtless to his exceeding joy, all the advantages of free legal defence, touring departments, road guides and patrols, and all the rest of the real or supposed benefits of membership of one or the other, and all for a merely nominal payment. Now, apparently, the free legal defence shoe is beginning to pinch, and both are wondering what the outcome is going to be. The fact of the matter seems to be that they have got themselves more or less into the position of the old lady in the story who sold her loaves at less than cost and was only enabled to keep going by the large number she sold! It seems to be suggested in explanation that the motor cyclist is a less law-abiding person than his *confrère* of the car. That, it seems to us, is rather a doubtful line of reasoning, and one that we should hesitate to endorse unless definite proof were forthcoming in the shape of statistics of the actual number of cases dealt with before the Courts by the legal representatives of the R.A.C. or A.A. In the scramble for huge memberships the two associations have contracted to sell under cost—that is all there is to it. If it costs the A.A. two guineas per annum to give its full benefits to its car members, it is manifest that it cannot afford to differentiate in favour of the motor cyclist to the tune of seventy-five per cent. of the annual subscription. Nor can the R.A.C. give facilities for two shillings per head which it costs five to provide. That is the situation in a nutshell—the two bodies have pauperised the motor cyclist without properly considering the cost.

◆ ◆ ◆

"Murderous Motoring."

Kingston-on-Thames has discovered another crime of the motorist, "murderous motoring" to wit. One of the journals published in that delectable river-side resort indulges in a recent issue in a most blood-curdling screed apropos the sins of certain motorists, who, when caught exceeding the legal speed limit drive deliberately at the trapping policeman, giving him the alternative of a record long jump or a speedy exit from this vale of tears. Then, when efforts are made to trace the offender it is discovered that either there were no number-plates on the car, or they were false ones, or alternately that they could not be distinguished. We should certainly not treat the matter in any spirit of levity if we thought there was a single shred of foundation for the story, which we imagine to have been woven out of the brain of some imaginative police-constable, who has described to a sympathetic Bench the manner in which quite a number of cars had been driven straight at the constable who attempted to stop them. We have come across a good many choice examples of the genus road-hog in our time, but we simply cannot believe that even the worst would deliberately set out to risk all the consequences of wilful and deliberate murder in order to escape the infliction of the usual penalty for exceeding the limit—even when it is assessed as it is in Kingston. To that extent we are in agreement with our Kingston contemporary, and we are inclined to go even farther and agree that if such things indeed happen the police should be given powers to stop the drivers by any means in their power. But, as we have already said, we cannot bring ourselves to believe the story, especially as it alleges a class of offence which we never remember having heard of in all our somewhat lengthy connection with motoring. That it should come from Kingston, too, is not the best recommendation for its too ready acceptance, and we much prefer to think that it arises out of a combination of that imaginative policeman and a leader writer hard up for a topic to discuss in this dull season of the year.

◆ ◆ ◆

"Mating" the Railway Company.

Quite a little comedy, in which the motor car is playing the lead, is taking place down Hither Green way. It appears that when the St. German's Estate was being developed, the people interested made terms with the S.E. & C. Railway whereby residents on the estate were to get their season tickets at a cheaper rate than the less-favoured individuals living beyond its confines. For a time, everything was as merry as the proverbial marriage bell, but recently things have altered, for the hard-hearted railway company has repudiated its agreement, and has placed the St. German's people on the same footing as those without the pale. The consequence is that, naturally, the fires of indignation are burning with a fierce and lurid flame; meetings of protest have been held, and the upshot of it all is that a boycott of the train service has been declared. A motor car service to the City is being arranged, and quite a number of the offended residents have taken out season tickets by the new service. In the meantime, the railway officials are quite unrepentant and, so they say, are looking forward to the

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winter months to prove the impracticability of the motor service.

Now, if the railway concerned was any other than the South-Eastern, its officials would hardly take the same optimistic view of things. Others of the great companies have discovered that the motor vehicle can be either a very valuable adjunct to their business or a very formidable rival, as the case may be. Doubtless in another ten years or so the South-Eastern people will awake to the realisation of this. To us there is really something attractive about this motor service to town. No running to the station in the morning, but a car to pick one up at the door. No walk through rain and suburban mud on the dark, cold winter evenings, but a comfortable run down from town right on to one's own doorstep. It sounds quite good, and unless we are very much mistaken the future will see a very large development of this business, which the self-satisfied railway authorities at Hither Green are pleased to treat with scorn. It will be extremely interesting to watch the development of the scheme.

The Western Road Scheme, Deceased.

The L.C.C. has rejected the scheme propounded for continuing the Cromwell Road to Hounslow, and by so doing has damned an enterprise which we cannot but think would have been of immense benefit to London and its congested traffic. We have discussed the subject of this proposed new road in all its bearings, so that we need not waste time in outlining its advantages here and now. The L.C.C. has certainly not served its London well in refusing to come in and assist in carrying the scheme to maturity, but as its reasons may seem to it to be good ones, we will let it rest where it is. It is a great pity that we are not to have this new and much-wanted road, but the whole history of the metropolitan roads has been one of short-sightedness on the part of responsible authorities, and we are becoming so used to this trait that we have become almost reconciled to it.

There is one point of view, however, to which we must strongly dissent and that is the one advanced by, strange to say, a motoring writer in one of the dailies. He takes the very narrow line that the Road Board was desirous of spending three-quarters of a million in order that the motorist might save a few minutes between Earl's Court and Hounslow. Such reasoning is almost worthy of the Highways Protection League! The proposal to construct this new road was brought forward, if we can read the signs aright, in order that the shocking congestion of traffic in the remote West End might be relieved, and by traffic we do not understand motor traffic alone, but all traffic—motor, horse, hand-drawn and pedestrian. We like, too, the way in which this same writer speaks in criticism of the manner in which the Road Board is spending "our" money! Certainly, the Road Board is administering funds derived from the taxation of the motor vehicle, and to that extent we are, perhaps, justified in the feeling that we as motorists have a sort of proprietary interest in the Board and its doings. Moreover, as motorists and road-users we are interested in seeing that the Board follows a policy which we in that capacity can view with approval. But, unfortunately for our pockets, the money which the Road Board handles has ceased to be "ours" in any but the remotest sense. It so happens that the Chancellor of the Exchequer has very wisely diverted the motor taxes to the service of the roads, but that is a mere accident of policy—if no single penny piece was being spent by the Imperial authorities on the roads or if no Road Board existed, we should still be paying our motor taxes. Therefore, why speak of money which is "ours"?

Objectionable Headlines Again.

When will the lay Press—which, incidentally, derives no small portion of its advertisement revenue from the motor and allied trades—drop its almost invariable habit of sensationalism wherever the motor vehicle is concerned? We have before us a cutting from a journal called the *Dover Express* headed "The Motorcar Terror." Naturally, we expect to find some chronicle of fatal or serious happenings in which the road-hog figures, but not a bit of it. Instead of which we find that it heads a courteously worded and most eminently reasonable letter from the Kent County Council, asking the courtesy of the journal's columns in order to remind motorists that during the ensuing few weeks nearly all the schools in the county will be closed, that the usual immigration of visitors, some seeking work and others pleasure, will be taking place, the roads will be full of pedestrians, cyclists and other traffic, and special care will be necessary not only in populous but in rural areas. The County Council, with these facts in mind, ask that motorists within the county borders will exercise a little more care than normally. Now this is really reasonable, and we trust that motor tourists in Kent will keep the warning and the request carefully in mind during the period covered by the request, but what earthly justification can there be for heading such a letter in the way described? None whatever, that we can see, and the most charitable excuse we can find for the lapse is that while the editor of the *Express* has been holidaying the office-boy has been entrusted with the writing of "scare-heads." Perhaps on his return the editor will inform this enterprising and imaginative youth that it will do no harm to anyone if he couples a little discretion and some sense of proportion with his future efforts.

Reckless Driving in Cumberland.

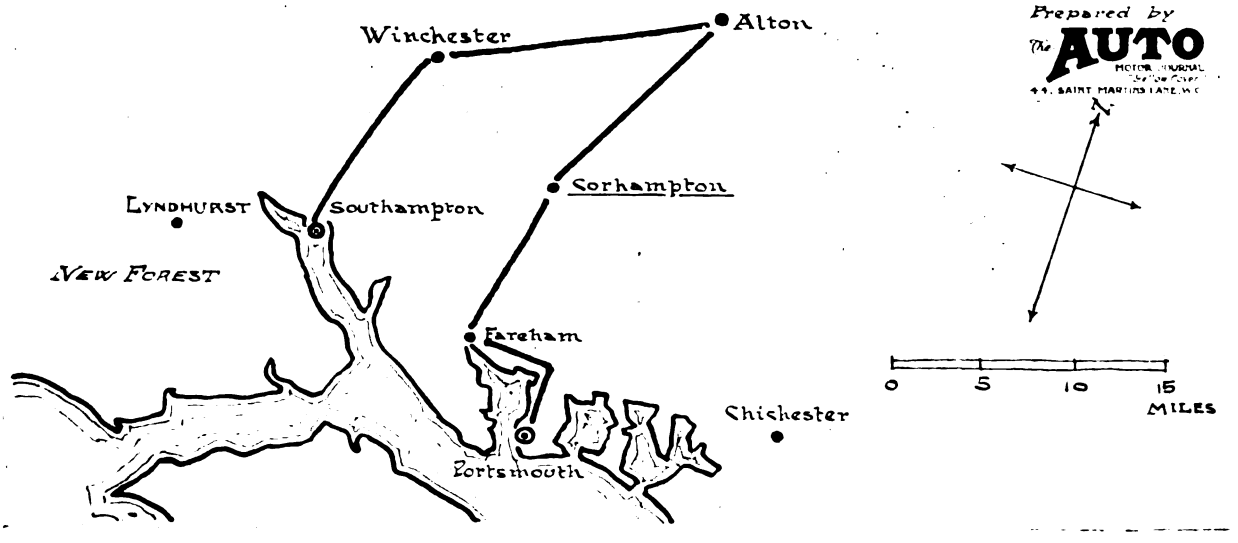
APPARENTLY owing to the inconsiderate driving of a few selfish motorists in Cumberland, there has been a great demand for speed limits. The R.A.C. together with the A.A. and M.U. and the Cumberland M.U. have been in negotiations between the applicants and the County Council, and it has been decided not to go forward with the proposed speed-limit applications, but to allow the motor organisations to erect warning signs at the affected places. It is hoped that these requests to drive slowly will be respected, and that motorists will be very careful when passing through Cockermouth, Wigton, Brampton, Egremont, St. Bees, Hensingham, Millom, Keswick, and Alston.

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WITH THE CAMERA AND THE CAR.

A PICTURESQUE HAMPSHIRE VILLAGE.





A view of the ancient church and barn in the picturesque little Hampshire village of Corhampton.

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SOME KENTISH BEAUTY SPOTS.

By "THE MAN AT THE WHEEL."



Chiddingstone Castle. 5-armed finger-post at top of Titsey Hill. Penshurst Place.

I HAVE often endeavoured to fog out routes suggested in the Press by gentlemen who, themselves admirers of lovely scenes, desire fellow motorists to participate in the pleasure. Unfortunately, nearly all these well-meaning enthusiasts do not quite realise that their own acquaintance with a district is not possessed by strangers, and as a consequence but the vaguest directions are offered to the discomfiture of followers in the originator's wheel-tracks.

To overcome this difficulty I have devised the accompanying sketch map with consecutive numbers at awkward places or where sign posts are missing. These numbers agree with the table at the end which shows the correct turns to be taken, names of places to look for on posts, and accumulating distances in miles and tenths of a mile. Motor cars are nowadays fitted with distance recorders, and if any doubt arises at a turn or cross road, the recorder can be referred to to check off with the mileage shown on the table.

The route outlined does not extend beyond a radius of 30 miles from Charing Cross, yet embraces some of the most beautiful portions of Surrey and Kent, and amongst trips it is hoped to describe in the AUTO., there are few to compare with it in the wondrous and far flung views that open out at almost every half-mile. The expansive character of the landscape is really entrancing, differing altogether from celebrated hill-top views, because, although there is much switchback work for the car, fresh aspects continually appear which do not become obscured when the car descends to lower ground. Although the nominal starting point is taken from the R.A.C. Club House close to Charing Cross, the roads to the middle of Croydon, *via* Whitehall, Westminster Bridge, and the tram-line thoroughfares of Kennington Road, Brixton Road, Streatham High Road and London Road, Croydon, are unmistakable, ten miles as nearly as possible. In the middle of the town, where a right-angled crossing complicates the ascent of the short slope ahead, the trip recorder of the speedometer can be set to zero, so as to agree with point No. 1 on the map and table. Keeping the original direction straight along the narrow street for a fraction over 1½ miles, point 2 takes the car to the left from the main Brighton Road at the Red Deer Inn (public houses are useful despite the contrary declaration of our temperance friends), and passing beneath a railway bridge, that about coincides with the change down to a lower gear, there comes immediately a fine panorama on the right, across to the tops of the hills that line the Caterham Valley. Further up the hill the view is shut out by mossy fern-lined banks, topped by splendid oak trees that will bear comparison with anything Devonshire can produce. And we are only 13 miles from Charing Cross.

The 1½ miles of gradient is a fair sample of those to be traversed later in the day, and as our 16–20-h.p. Wolseley car came up on third gear, no owner need be deterred from taking a small-powered vehicle over the same roads. Keeping straight ahead for a couple of miles, we swing left beside the village green at Warlingham. The few houses hereabouts are not representative of the district, as in the last five years City men have discovered its beauties, and dozens of fine mansions are scattered along the slopes that lie off to the right. Before reaching point 4, we ascend and cross Worms Heath (good for blackberrying in the autumn) and having a wide reputation amongst geologists for being one of the few spots south of London where the old red sandstone outcrops to the surface, shown by an excavation to the right before reaching the brow of the hill. At point 4 be careful to turn sharp round to the left, so as to avoid the tree-lined drop down Titsey Hill. In half a mile from point 4, just where the woods end on the right and a narrow lane comes in on our road from the left, I must beg car occupants to alight and walk through a gate on the right into a field. Stepping for only 50 yards to a shoulder of greensward by a few fir trees on the left, they will be rewarded by a fine panoramic view. This spot is 868 ft. above sea level and opens out nearly the whole length of the Holmesdale Valley, from where it debouches at Maidstone, with the heights of Chatham in the extreme distance leftward, sweeps right round to Ashdown Forest directly opposite (15 miles across the valley), and is only closed in to the right by the eastern slope of Leith Hill. Towns and villages spring out of their embowering greenery when one's vision gradually secures the proper focus, and were that lacking feature of southern views—a winding river—placed here by Nature, the view could nowhere be surpassed. In the writer's opinion, it is much finer than the better-known panoramas from Leith Hill and Newlands Corner.

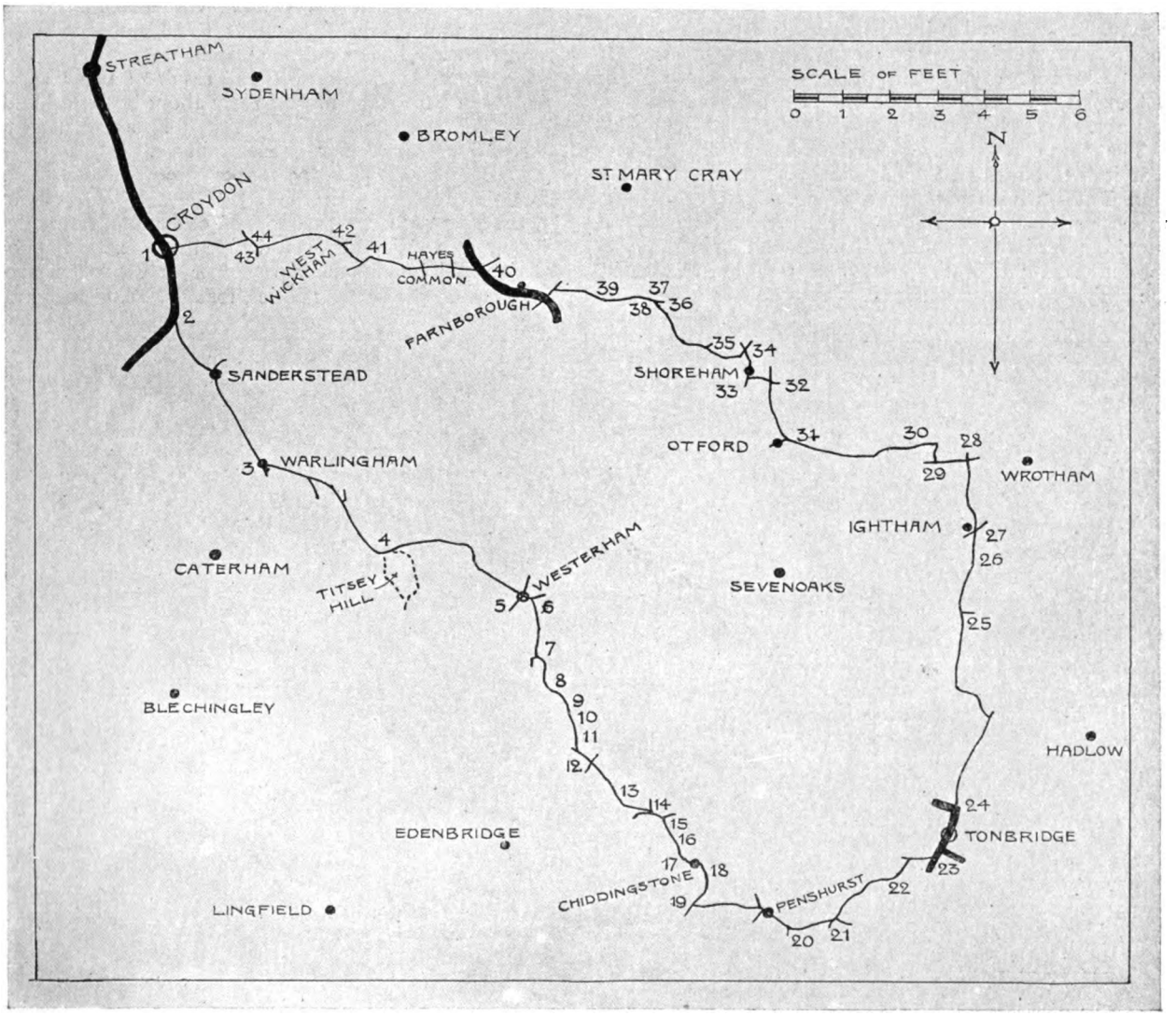
Thereafter, all the direction-posts must be followed down hill into Westerham, and strictly conforming to the cautionary boards at point 5 (unlike too many of the M.U. notices, these *are* necessary) the car is steered past

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the recently-erected statue to General Wolfe. Around a lamp-post where the houses finish and turning sharp right, we are again tackling a one-mile climb to the top of Crockham Hill Common, 700 ft. above the sea. I once heard a suggestion that an engineering genius ought to erect a bridge across the intervening valley to the top of Westerham Hill, thus saving emulation of the Duke of York, in going down merely for the sake of going up! But what would become of the scenery if all the valleys were to be bridged by ugly steel girders? The open ground hereabouts affords opportunity to stop for luncheon—for those wise folk who carry their own provisions—the sandy track, left hand at the top, reaching several tree-shaded greens that are nicely secluded from passing traffic.

As the hill is descended southwards a sharp look-out must be kept for the "turn left" at point 7, for being bent on conducting car drivers to the quaint old hamlet of Chiddingstone I do not want to be chided for mis-direction. Being the first turn to the left from the top no possibility of error can arise, but thereafter let no stranger trust to luck or rely upon finding a local inhabitant amongst the lanes now to be threaded. Chiddingstone is such a very small place that there is some excuse for the Urban District Council omitting the name from direction posts until roads are reached that lie handy, but the persons responsible for the name-painting upon the direction arms in this neighbourhood have little idea how such things should be done. The first post seen—point 6 on the map—indicates "Four Elms, Hever, Chiddingstone, Penshurst," then the next five posts omit notice of the place we want, the sixth turn is without any sign-post, the name appears upon a post at the seventh corner, is missing at the next doubtful corner, and then the last couple of posts are all right. The distance from where Chiddingstone is first thought worthy of mention to its next appearance on a post is four miles, nothing to speak of along a straight road, but exasperating in the extreme when the lanes rival the famous Hampton Court maze in complexity. Please, therefore, carefully note each turn from point 6 to point 17 inclusive.

Look out for a little gem of a view where a lake fronts a modern castellated residence soon after passing point 17, and then our first destination is reached at the top of a



"Auto." (Yellow Cover) Copyright.

SOME KENTISH BEAUTY SPOTS.—Map of the route taken by "The Man at the Wheel."

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short hill where the car must be stopped. Chiddingstone only boasts some ten houses, of which six facing the church are finely preserved specimens of 15th century carved oak work.

Do not fail to walk round the churchyard, noting an enormous magnolia bush against the church wall, a leafless but otherwise perfect Spanish chestnut tree, and a red cedar at the eastern end, enter the Castle Inn, ask the proprietor for permission to look into his residence two doors away, and finally glance inside the tiny butcher's shop at the rear of the inn, which boasts the luxury of white marble slabs. I shall be disappointed if visitors, coming to Chiddingstone for the first time, do not agree that it is worth ten times the trouble involved in locating its position. Nor does quaintness cease at the hamlet, for at the next turn in the road, in a quarter mile, the car wheels must be directed right hand towards what, momentarily, looks like a farm entrance between a cart shed and the most picturesque hop-drying kiln in all Kent, yet is actually a secondary highway with surface always in good condition.

(*To be concluded.*)

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A NEW AMERICAN CAR AND BRITISH PARAFFIN CARBURETTOR.

LAST Saturday, amongst the spectators' cars at Brooklands, we noticed a particularly smart and apparently powerful two-seater car. On closer examination it turned out to be a 27·4-h.p. Pathfinder, a high-grade American production, and we hear that a company has just been formed for the purpose of putting Pathfinder cars on the English market. From a casual inspection which we made on the spot, it was quite evident that the car is well built. It is equipped with a 4-cylinder engine of 105 mm. bore by 130 mm. stroke, and it is splendidly fitted up with a very roomy and comfortable two-seater body, of which the extremely neat way of carrying the spare rim and of holding down the hood are not the least noteworthy features.

The new comer was doubly interesting from the fact that it is fitted with a Stewart paraffin carburettor, which is of British design and manufacture. As we stood by the car with the engine just ticking round quietly we should never have imagined that ordinary paraffin was the fuel used until it was pointed out to us by Mr. Morris, the designer of the carburettor. Not the least difference could be noticed either in the smooth and even running or in the powerful pulling of the engine, nor even in the smell of the exhaust. This latter we found particularly clean, and even more free from odour than the exhaust of a well-tuned petrol engine. Upon enquiry at the Stewart Precision Carburettor Co., Ltd., of 199, Piccadilly, W., who have acquired the sole rights of this new invention, we are informed that the Pathfinder car fitted with the Stewart paraffin carburettor will have started on an official trial under R.A.C. observation by the time these lines appear in print.

We are looking forward to the result of this test, and shall then have some more to say about both Pathfinder cars and Stewart paraffin carburettors as soon as the official figures for the latter are available.

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Encouraging Motor 'Buses in San Salvador.

FOLLOWING the example of other South American States, San Salvador has decided to exempt public service vehicles, either for passenger or goods transport, from customs and other duties, for a period of six months.



A tight squeeze, being an incident between a Rolls-Royce and a Flanders on Countisbury Hill, a portion of the route over which the competitors in the Six Days' Auto-Cycle Reliability Trials passed.

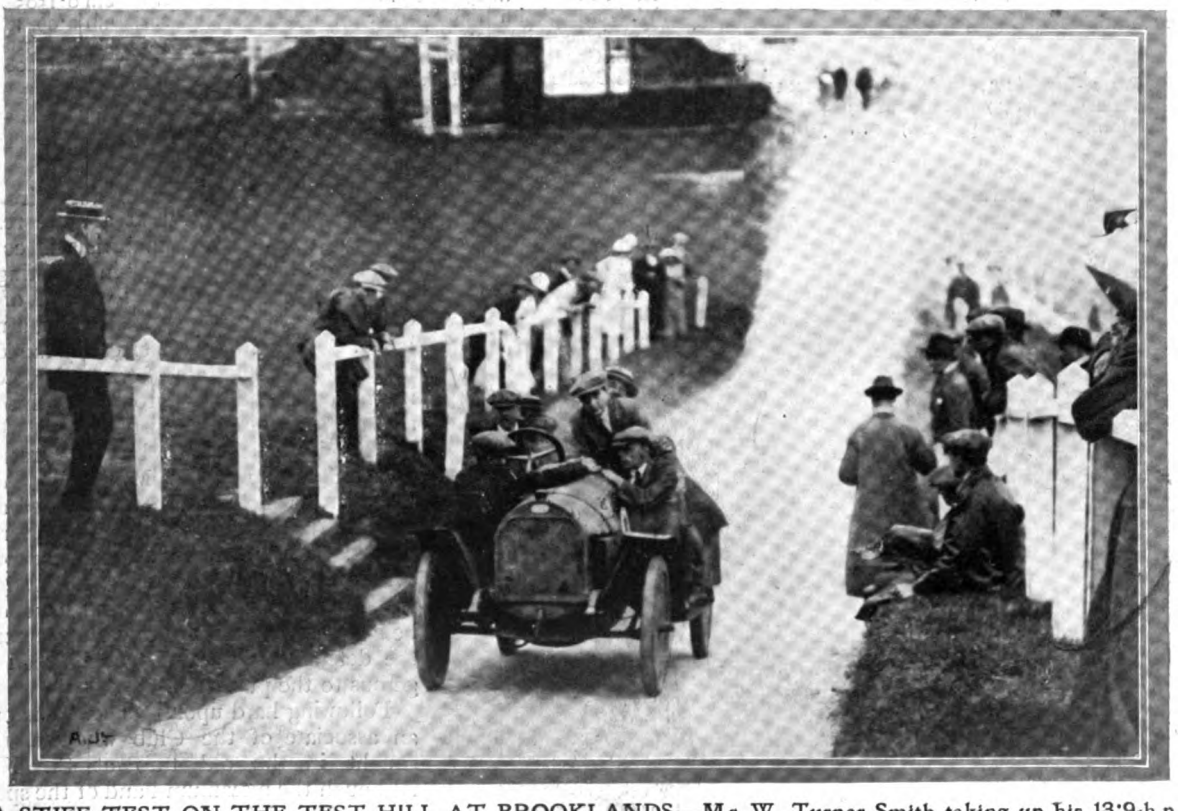
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THE ESSEX MOTOR CLUB AT BROOKLANDS.

ONLY a few months ago we had to use some hard words when commenting on the organisation—or rather the lack of it—of the hill-climb organised by the Essex Motor Club at Aston Hill. But last Saturday it gave us intense pleasure to notice that our criticism seems to have borne the right kind of fruit, for the club's race meeting at Brooklands was a model of good organisation, and consequently a well-deserved success. Those in charge of the meeting proved beyond a doubt that to make it a success it is by no means necessary to cram a huge number of events into the programme, and the result showed that the six items presented were quite sufficient to provide excellent sport and an enjoyable afternoon.

Although some fine speed-work could be witnessed in the three motor cycle races, the finishes of these events were rather tame. Only two started in the Side-Car Race, while in the Short Motor Cycle Race, Mr. A. da Silveria on an Indian rode a fine race, and won from scratch by 400 yards. Mr. D. S. Kapadia, who had been much fancied, had a rather nasty spill behind the members' enclosure through the belt of his machine coming off and fouling the wheel, but he escaped with nothing worse than a shaking, and a rather deep cut in his forearm that had to be stitched up. In the Long Motor Cycle Race over five laps, Mr. J. H. Whitlark, on a Rex, ran away from the field and won in a canter by nearly a mile.

Much better sport was provided by the three car events, which attracted the keenest interest of the crowd. Their outstanding feature was that all three, the two speed races and the hill-climb, were won by Mr. G. D. Pearce-Jones on his 20·1-h.p. Vauxhall, which, by the way, is the identical machine that did so well in the first Prince Henry Tour in 1910, when it was driven by Mr. R. Selz. Every time Mr. Pearce-Jones won easily, but fine struggles for second and third places were fought out between Mr. A. G. Brown on Hispano-Suiza and Mr. L. G. Hornsted on the Mass in the short race, and Mr. S. G. Cummings on Crespelle and Mr. Hornsted on the Mass again in the long race, the latter running a close third in both cases. Mr. J. Storey on a 15·7-h.p. Calthorpe, in the short race, had a narrow escape. The bonnet of his car blew off owing to the very boisterous wind, and nearly fell on his head. He just managed to knock it upwards, but it was a near thing. The most interesting event of the whole afternoon was the hill-climb for which twelve cars started. Mr. Storey was the first up; he effected a very smart change of gear at the beginning of the 1 : 4 grade and did third fastest time. Mr. W. Turner Smith had loaded up his little 13·9-h.p. Stoewer car with no less than ten passengers, amongst whom the well-known "bookie," Tom Tyler, was a prominent figure. As everyone knows he is by no means a featherweight, and the party was loudly cheered as the little car made the ascent in 22⅘ secs, *i.e.*, at an average speed of over 10½ m.p.h., a splendid performance for an engine of but 75 × 88 mm. Miss Goldie, the only lady competitor, attempted the ascent on her 10-h.p. Delage, but got on a greasy patch with the result that her off-side rear wheel started spinning round. The car began sliding backwards down the hill with locked wheels, and for a moment the situation seemed critical, but the resourceful young lady calmly steered her car into



A STIFF TEST ON THE TEST HILL AT BROOKLANDS.—Mr. W. Turner Smith taking up his 13·9-h.p. Stoewer car, with a little freight of ten people, at the Essex Gala Meet at Brooklands on August 17th. The car went up with this load without any difficulty.

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the bank and thus brought it to a standstill without doing any damage. Much cheering rewarded Miss Goldie for this display of good driving. Mr. Pearce-Jones came up magnificently, two-fifths of a second faster than on the occasion of the R.A.C. Gala Day, when he went up in 9 secs. He was easily first on time and formula. With admirable promptness the results on formula were worked out and made known 40 minutes after the last car had ascended the hill.

Side-Car Race.—Distance 5½ miles. Gold medal for the winner; silver medal for second.

		Bore and stroke.	Capacity cc.	Start. secs.
1.	D. S. Kapadia (Rex-Jap)...	85 × 88	964	scratch
2.	C. F. Michell (Bat-Jap) ...	76 × 82	774	8

Winner's speed, 40½ m.p.h.

Short Car Race.—Distance 8½ miles. Gold, silver, and bronze medals to first, second, and third respectively.

		Bore and stroke.	Start. m.	s.
1.	G. D. Pearce-Jones (20·1-h.p. Vauxhall)	90 × 120	1	0
2.	A. G. Brown (15·9-h.p. Hispano-Suiza)	80 × 180	0	24
3.	L. G. Hornsted (13·9-h.p. Mass) ...	75 × 140	1	0

Also ran:—O. D. Pollak (15·9-h.p. S.C.A.R.), 80 × 140 mm., 48 s.; S. G. Cummings (13·9-h.p. Crespelle), 75 × 150 mm., 1 m. 30 s.; F. B. Goodchild (13·6-h.p. Oryx), 74 × 96 mm., 1 m. 45 s.; Miss Goldie (10-h.p. Delage), 65 × 110 mm., 4 m. 6 s. Won by the length of finishing straight; 20 yards only between second and third. Winner's speed, 63·67 m.p.h.

Motor Cycle Race.—Distance 8½ miles. For touring machines in touring trim. Gold, silver and bronze medals for winner, second and third respectively.

		Bore and stroke.	Capacity. cc.	Start. secs.
1.	A. M. Silveria (Indian)...	82½ × 93	994	scratch
2.	J. H. Whitlark (Rex) ...	77½ × 95	896	9
3.	J. A. Campbell (Rudge)	85 × 88	499	30

Eight started. Won easily by 400 yards; length of straight between second and third. Winner's speed, 69 m.p.h.

Long Car Race.—Distance 13¾ miles. Gold, silver and bronze medals for winner, second and third respectively.

		Bore and stroke.	Start. m.	s.
1.	G. D. Pearce-Jones (20·1-h.p. Vauxhall)	90 × 112	1	40
2.	S. G. Cummings (13·9-h.p. Crespelle)	75 × 150	2	30
3.	L. G. Hornsted (13·9-h.p. Mass) ...	75 × 140	1	40

Also ran:—A. G. Brown (15·9-h.p. Hispano-Suiza), C. R. Engley (24·8-h.p. Turcat-Mery), O. D. Pollak (15·9-h.p. S.C.A.R.), C. D. Street (13·9-h.p. Stoewer), W. Turner Smith (13·9-h.p. Stoewer), F. B. Goodchild (13·6-h.p. Oryx).

Pearce-Jones again won easily by 200 yards. Hornsted made a great effort to catch Cummings, whose Crespelle was running fine, but could not beat him; the latter was only 1½ lengths in front. Brown, on Hispano-Suiza, was a good fourth. Winner's speed, 64·67 m.p.h.

Long Motor Cycle Race.—Distance 13¾ miles. For touring machines in road trim. Gold, silver and bronze medals for winner, second and third respectively.

		Bore and stroke.	Capacity. cc.	Start. m.	s.
1.	J. H. Whitlark (Rex) ...	77½ × 95	896	0	15
2.	J. A. Campbell (Rudge) ...	85 × 88	499	0	50
3.	E. G. Brown (Triumph) ...	85 × 88	499	1	35

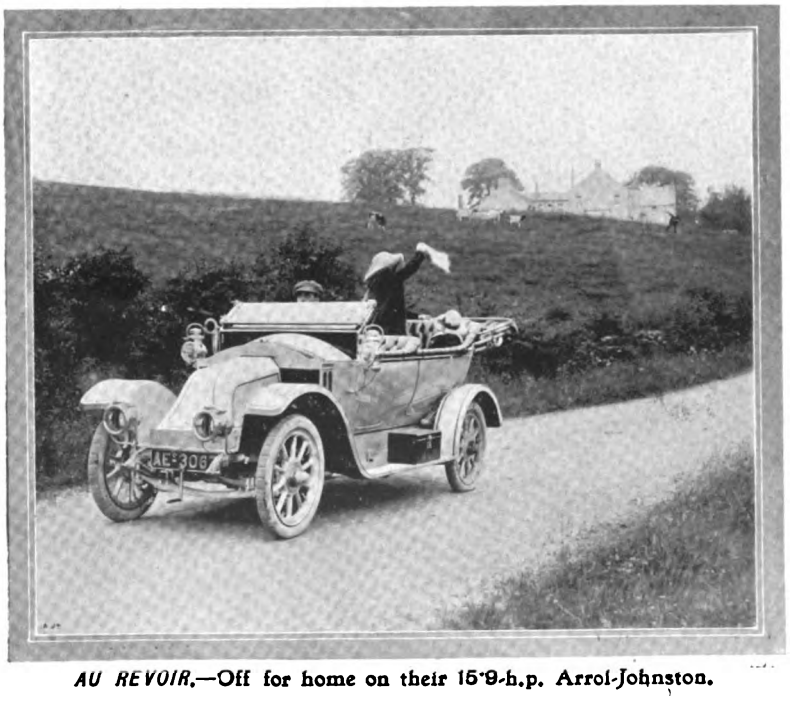
Six started. Easy win for Whitlark by fully a mile; length of straight between second and third; a good fourth. Winner's speed, 63 m.p.h.

Hill-Climb.—Thornycroft formula: $\frac{\text{Time (secs.)} \times \text{h.p.}}{\text{Weight (16)}}$

$$\text{h.p.} = \frac{B^2 \times \sqrt[3]{S} \times \text{No. cyl.}}{35{,}000}$$

Entrant.	Car.	Bore and Stroke.	Weight with Passengers.	Time.	Position on Time.	Figure of Merit.	Position on Formula.
	h.p.	mm.	lbs.	secs			
G. D. Pearce-Jones	20·1 Vauxhall ...	90 × 120	2755	82⅝	1st	0·07030	1st
O. D. Pollak	...15·9 S.C.A.R. ...	80 × 140	2606	102½	2nd	0·077188	2nd
C. Storey	...15·7 Calthorpe ...	79½ × 150	2259	11	3rd	0·099205	6th
J. R. Engley	...24·8 Turcat-Mery	100 × 130	2952	11½	4th	0·11127	8th
L. G. Hornsted	...13·9 Mass ...	75 × 140	2093	11½		0·09275	5th
S. G. Cummings	13·9 Crespelle ...	75 × 150	2045	11⅜	6th	0·10028	7th
Mrs. Cummings	...15·9 S.C.A.R. ...	80 × 140	3283*	14¼	7th	0·085298	3rd
A. G. Brown	...15·9 Hisp.-Suiza	80 × 180	2293	14⅜	8th	0·1505	9th
W. Turner Smith	13·9 Stoewer ...	75 × 88	3138†	22⅜	9th	0·092408	4th
F. B. Goodchild	3·8 Zebra ...	—	1129	35⅜	10th	0·15316	10th
F. B. Goodchild	13·6 Oryx ...	74 × 96	2205	30⅜	11th	0·18208	11th
Miss Goldie	...10 Delage ...	65 × 110	2007	Failed			

* With 4-seater body, hood screen, and four passengers.
† Carried ten passengers.



AU REVOIR.—Off for home on their 15·9-h.p. Arrol-Johnston.

Sweet Reason in Huntingdonshire.

IT would appear that a more reasonable attitude towards motorists is coming over the "Great Unpaid" in Huntingdonshire, as particulars are to hand of two cases being dismissed. In the first, a member of the R.A.C., undeterred by the knowledge of the usual fate of trapped motorists in the county, decided to defend his case, and the summons was dismissed.

This is believed to be the first case under Section 1 of the Motor Car Act in the county which has been dismissed on its merits. Hitherto it has been the invariable practice of the magistrates to accept the evidence of the police on the question of speed as infallible, and, in the event of its being over 20 miles per hour, to convict the defendant for driving at a speed dangerous to the public.

Following hard upon this case was one of an associate of the Club who had been caught in the old trap at St. Neots. Although the maximum hand of the speedometer showed 15 miles per hour, the police timed the car as doing 27 miles per hour. Nevertheless, the case was dismissed.

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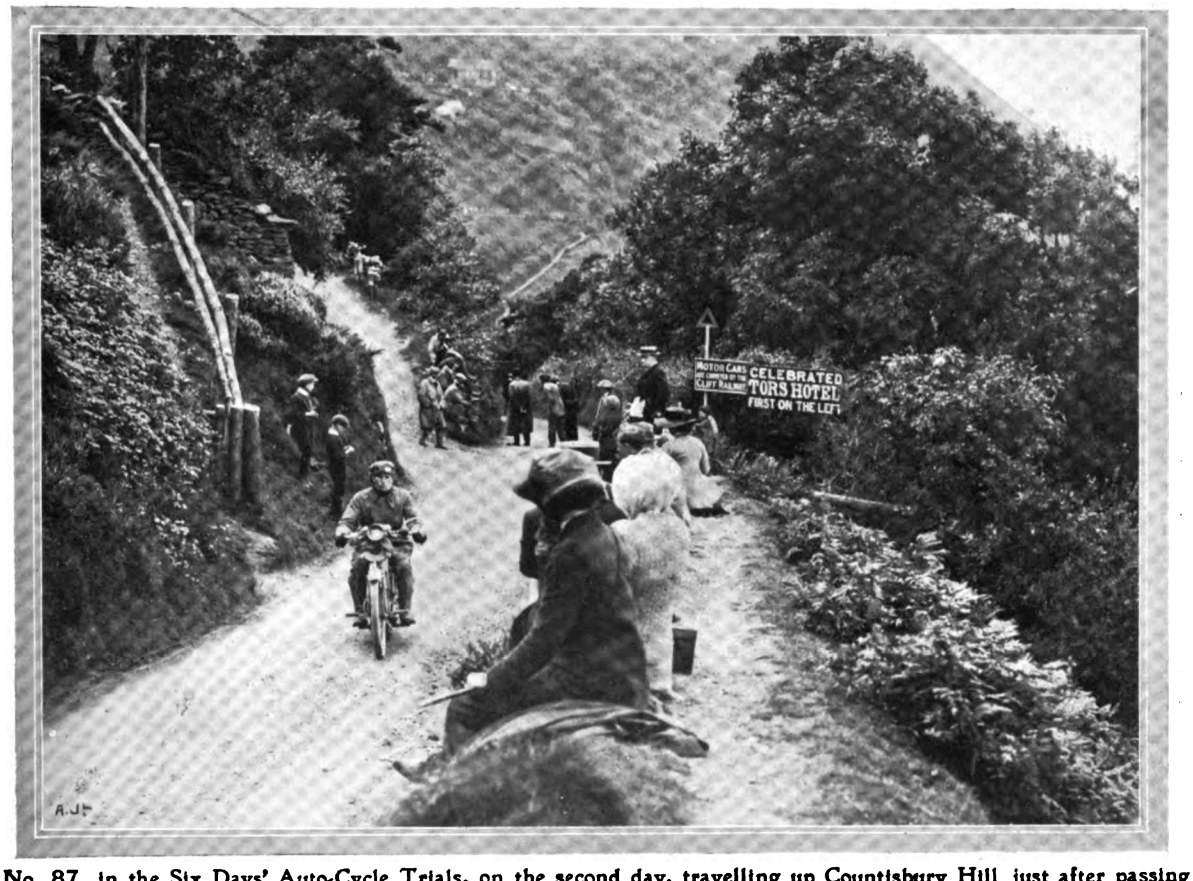
THE A.C.U. SIX DAYS' TRIAL.

THE annual Six Days' Trial of the Auto-Cycle Union which this year radiated from Taunton as a centre, as our readers already know, proved a reliability trial in the fullest sense of the term, and of the 131 machines which started only 80 completed the full course. The routes for each day's run were over very hilly country, and any weak points in design or construction which were not brought out by this factor were revealed by the exceptionally severe weather. On the opening day the route was through Teignmouth, and Torquay to Plymouth, returning *via* Exeter. Blagdon Hill was the first stumbling block, and accounted for eight failures. In the neighbourhood of Teignmouth very severe rains were encountered, necessitating some careful corner work afterwards, as the roads became very greasy. At Exeter, too, where there was a secret check, it rained heavily, and those who had not previously provided themselves with protection invested in oilskins. Some exciting side-slips were seen in the streets of the city. Eleven competitors retired during that day. For Tuesday's run to Lynmouth *via* Ilfracombe the weather was fine; in fact, it was the best day of the week, but the route was a very severe one, including an ascent of Beggar's Roost Hill, while there was a slow climb up Countisbury Hill, for which the maximum speed set was 12 m.p.h.

At the various vantage points round the course large numbers of spectators had assembled, especially on the hills, and they did not conceal their enthusiasm for any examples of extra fine driving. This day's run accounted for the retirement of another thirteen machines. Early in the morning on Wednesday soaking rains had made the roads very soft, while the showers which fell at intervals during the day made riding none too pleasant.

For the first 43½ miles out of Taunton on the way to Gloucester, which was the luncheon stop, the run had to be a non-stop one, the penalty for a stop being 5 marks. At the Cheddar Gorge there was a large crowd, which took great interest in the ascents of the various men, and especially of two ladies, Mrs. Hardee and Miss Hammett. Competitors were secretly checked at the top of Wooton-under-Edge Hill and also at Birdlip Hill, which had to be taken on the way back. There were only four retirements for this section.

The route for Thursday was kept secret until the previous evening, when cards were handed out and it was seen that the course was a tricky one through the lanes in the neighbourhood of Taunton, which was returned to for lunch. A feature of the course, which was laid out by the local club, was that round several of the corners the riders would unexpectedly find a hill stretching up in front of them on which were gathered officials to record the performances. During the morning run, just by Dunster, a water-splash had to be traversed under the observation of Capt. Nicholl, one of the judges. The afternoon's run was to Bath and back. One of the unusual experiences of the afternoon's run was the overturning of a side-car through the passenger leaning out too far when approaching a corner. There were 5 withdrawals during the day through one cause or another. On



No. 87, in the Six Days' Auto-Cycle Trials, on the second day, travelling up Countisbury Hill just after passing the worst portion.

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Friday the competitors had an easy run through Dorchester to Bournemouth, but a succession of rainstorms made the riding very uncomfortable, especially on the return journey *via* Sherborne. The route for the concluding day, Saturday, was a severe one, as it included ascents of both Porlock and Lynmouth Hills. The route was to Exeter, through Lynmouth and Tiverton, and back, by way of Lyme Regis and Crewkerne, a distance of 167 miles, an early start being made at 5 a.m. The road was in a fearful state owing to rain, and one rider turned a somersault a few minutes after leaving the starting place at Taunton. The surface of Porlock Hill was in an awful condition, which of course rapidly became worse and worse as the string of competitors went up, so that the last few had to make their way through pools of mud. Only 21 of the 86 starters got up the hill without dismounting, and there were exciting incidents galore, including side-slips and spills. Owing to the state of the hill the judges decided to ignore any pedalling which took place. Lynmouth was in no better condition, but those who had tackled Porlock successfully, had no difficulty in getting up. Thereafter the road was fairly easy back to Taunton.

The provisional official awards are :—

Gold Medals (1,000 marks and 50 bonus marks for climbing Beggar's Roost and Lynmouth Hills).

C. T. Newsome (3½ Rover); A. J. Sproston (3½ Rover); W. Pratt (3½ P. and M.); P. Shaw (3½ P. and M.); W. C. Drake (3½ P. and M.); S. Crawley (3½ Triumph); T. Pollock (3½ James); Frank Philipp (3¾ Scott); W. G. McMinnies (3½ Triumph); P. J. Evans (3½ Humber); C. M. Keiller (8 G. W. K.); Hugh Gibson (3½ Bradbury and side-car); H. Mellor Jameson (6 Enfield and side-car); H. F. S. Morgan (8 Morgan runabout).

Gold Medals (between 950 and 1,050 marks).

F. C. North (3½ Ariel), 1,039; L. Newey (3½ Ariel), 1,034; D. Noble (3½ Rover), 1,025; George Brough (6 Brough), 1,020; P. Moffatt (2¾ Douglas), 1,012; G. Castagnoli (3½ L.M.C.), 1,009; W. D. South (3½ Rudge), 1,000; J. F. Syrett (7 Indian), 1,000; B. Alan Hill (7 Indian), 1,000; W. F. Newsome (3½ Triumph), 1,000; A. D. Arter (3½ James), 1,000; Jesse Baker (3¾ Scott), 1,000; E. D. Dickson (7 Indian), 1,000; B. Haddock (2½ A.J.S.), 1,000; W. Heaton (2½ A.J.S.), 1,000; R. Holloway (3½ Premier), 1,000; G. Griffiths (6 Zenith), 1,000; W. B. Little (3½ Premier), 1000; H. Berwick (3½ New Hudson), 1,000; H. G. Dixon (3½ New Hudson), 1,000; A. J. Dixon (3½ Singer), 1,000; H. V. Colver (6 Enfield and side-car), 1,000; W. J. M. Sproulle (3½ P. and M.), 990; S. Brown (3½ James), 984; L. A. Bees (3½ L.M.C.), 982; J. D. Corke (5 A.J.S.), 982; J. S. Holroyd (2¾ Motosacoche), 975; J. N. Longfield (3¾ Scott), 975; L. M. Soresby (3½ L.M.C.), 975; A. J. Stevens (5 A.J.S. and side-car), 975; Frank Smith (5–6 Clyno and side-car), 975; C. R. Collier (7 Matchless and side-car), 975; H. C. Mills (3½ Green-Precision), 975; S. Sawyer (3½ Premier), 970; P. Platt (3½ Bradbury), 967; R. E. Guest (7 Matchless and side-car), 965; F. J. Watson (3½ Swift), 954; F. P. Dickson (6 Zenith), 951; D. Herdman (3½ Rudge), 951; A. R. Penny (2½ A.J.S.), 950; A. E. Catt (3½ Triumph), 950.

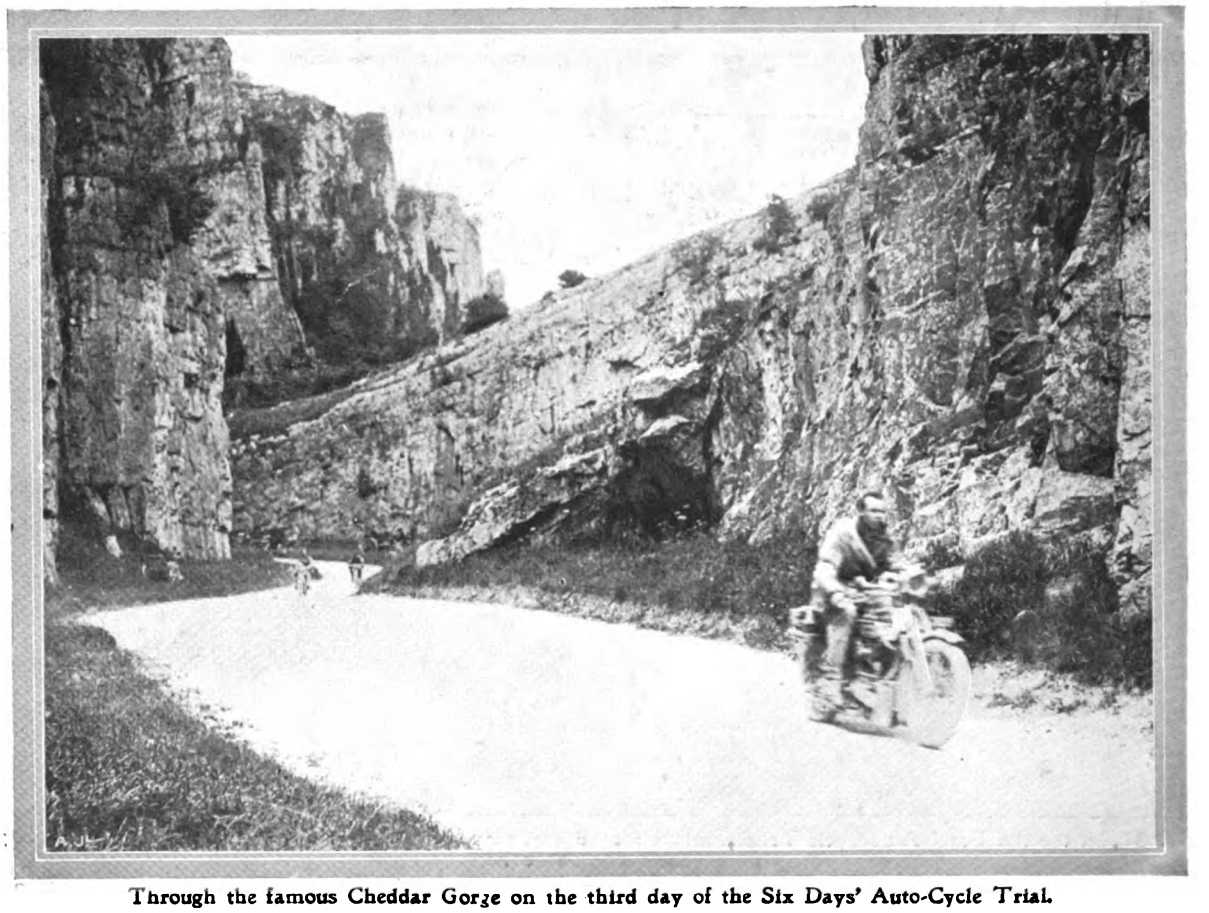
Silver Medals (between 850 and 950 marks).

R. Mundy (3½ Quadrant), 947; J. Haslam (6 Zenith), 947; A. P. Maurice (6 Zenith), 945; G. Hunt (3½ Campion), 940; W. B. Gibb (2¾ Douglas), 926; E. V. Pratt (3½ O.K. Precision), 925; H. Greaves (2¾ Enfield), 925; P. Phillips (2¾ Douglas), 925; M. Garney (5 Swan), 925; Mrs. Hardee (3½ B. and M.), 905; J. Peachey (3½ Swift), 905; C. L. Scott (3½ Rudge), 903; J. Tassell (7 Matchless and side-car), 883; P. Weatherilt (3½ Zenith), 882.

Bronze Medals (between 700 and 850 marks).

V. Wilberforce (2¾ Douglas), 844; P. D. Walker (3½ Rudge), 835; S. K. Jones (3½ L.M.C.), 834; R. C. Owen Wells (3½ Bradbury), 830; A. R. Abbott (3½ Bradbury), 800; L. Cass (4½ Quadrant), 784; F. C. Sangster (3½ Ariel), 775; W. E. Cooke (3½ A.S.L.), 697; G. Nott (7 Matchless and side-car), 690; Miss R. Hammett (2¾ Douglas), 657; J. Munday (6 A. C. Sociable), 637.

Trade Team Prize.—Messrs. Phelon and Moore.
P. and M. machines ridden by Pratt, Shaw and Drake.

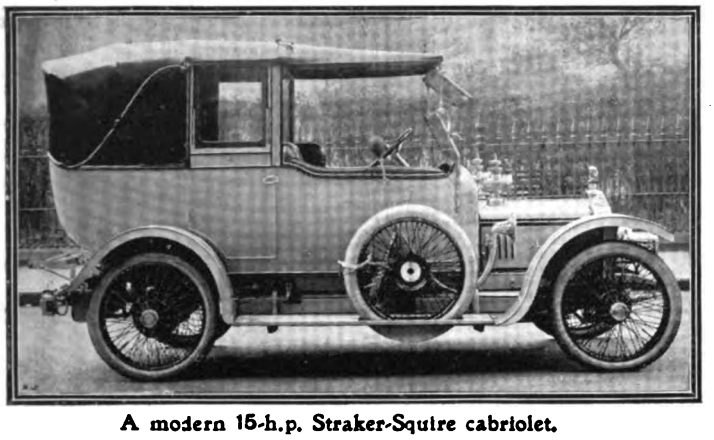


Through the famous Cheddar Gorge on the third day of the Six Days' Auto-Cycle Trial.

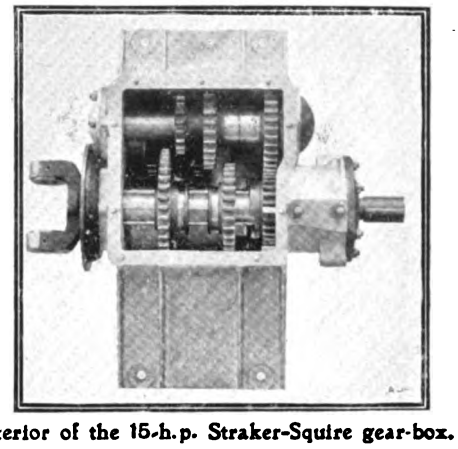
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THE STRAKER-SQUIRE "FIFTEEN."

A VERY charming small car is the Straker-Squire "Fifteen," and it is remarkable how much improvement the makers have succeeded in incorporating into a model that was already excellent three or four years ago. It is, as we have already had occasion to remark in previous articles, one of the nicest small cars that has ever come before our notice, and there can be no doubt whatever that the engineers of the company have indeed succeeded in evolving a design, and particularly an engine, that it is hard to beat.



A modern 15-h.p. Straker-Squire cabriolet.



Interior of the 15-h.p. Straker-Squire gear-box.

Their performance on Brooklands track with an engine 90 by 120 mm., instead of the 87 by 120 mm. that constitutes their regular dimensions, is at any rate going to be difficult to supersede, for the car in question, which went by the appropriate pseudonym P.D.Q.—of which the first and last initials stand for pretty and quick—achieved 95·45 miles an hour for the flying mile and 96·67 miles an hour for the flying kilom. At these speeds, the engine was turning somewhere about 3,500 r.p.m., and although the parts were specially lightened to obtain this result, nevertheless the fact of its accomplishment is a credit to the engineering abilities of the firm in question, and the similarity between the rest of the car and the standard model causes the event to reflect very considerable credit on this firm's standard cars.

They, too, are "pretty quick"; indeed, they drive more like a "thirty" than a "fifteen," only they have a lightness that would be foreign to the feeling of a big car, and their handiness and acceleration are both qualities that call forth the appreciation of a critical driver. At one time, the Straker-Squire "Fifteen" was characterised by a short-stroke engine, and it is significant that although their motors have increased in stroke and power, they have never lost the sweet smooth-running of the earlier short-stroke model. They are quiet and docile; are, in fact, altogether gentle cars to drive; they have a wonderful knack of getting over the ground, all the same, and their hill-climbing capacity is a delight. They possess the advantage of a quiet gear-box, and even on first speed there is an absence of the unpleasantness that so often accompanies the use of the emergency-gear. Much depends, of course, on the engine's power of turning evenly at any speed, which it does on this car in a manner that can be thoroughly relied upon.

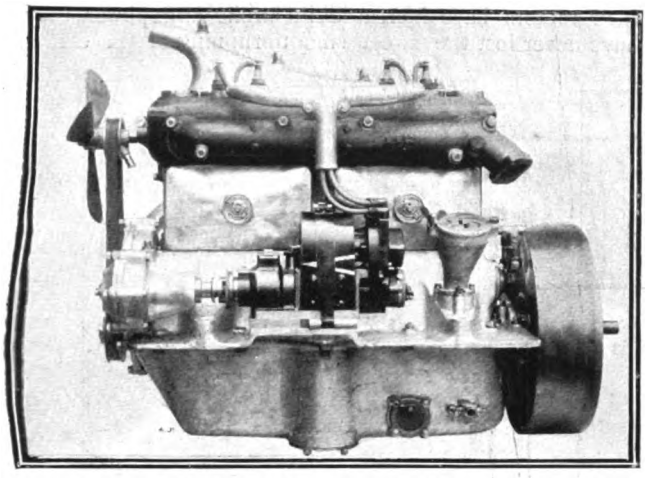


SOME CONTRASTS.—The "P.D.Q." Straker-Squire racer which holds the 21-h.p. rating records for the flying mile (95·45 m.p.h.) and flying kilom. (96·67 m.p.h.) on Brooklands. To the right is a Straker-Squire runabout behind the largest Straker-Squire commercial vehicle, which was built specially for Colonial work.

The coachwork now fitted to these models is a very great improvement both in comfort and appearance on the earlier type, as there is altogether more room and the cars look much smarter on the road. The control, from the driver's point of view, has always been good, and the easy clutch-pedal makes it the sort of car that might well be used by a lady. More important even than this, however, is the easy steering, which is not always a characteristic of the smaller cars, we have noticed, although it is generally a feature of the best large

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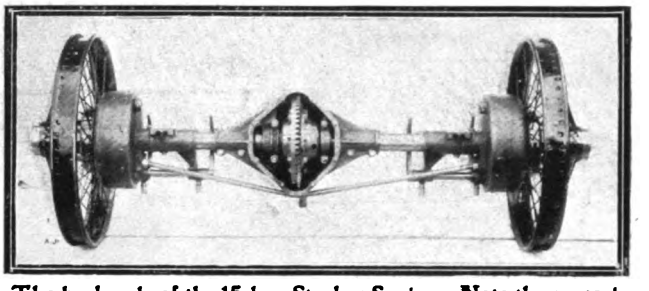
machines. The brakes on the Straker-Squire "Fifteen" both operate on the rear wheels, and although we have never particularly favoured a foot-brake in this position, nevertheless, we must frankly confess to a respect for the action of the brakes on this car, having had, by the vagaries of fate, to stop dead in a single trip on no fewer



The engine of the 15-h.p. Straker-Squire.—It has a bore and stroke of 87 × 120 mm.

than three occasions. In common with many cars, the side-brake lies outside the body, and if we may be permitted to suggest an improvement, it is that the lever be brought inside in future designs, for we have a prejudice in favour of this arrangement, which we believe is well founded.

The present Straker-Squire model has automatic ignition, an interesting experiment that works quite well, although many drivers will doubtless have observed certain characteristics that are, at first, perhaps a little puzzling. For our own part, we generally find that it pays to change down for quick acceleration when you want to get the best out of an automatically-timed magneto, as it is in conjunction with the use of the full range of engine speed that the advantages of automatic timing are most pronounced. In the illustration of the engine which we publish, the automatic mechanism, which consists of a centrifugal governor, is enclosed in a box at the front end of the magneto. There is also, it will be noticed, a toothed coupling in the driving-shaft, which enables the magneto to be set very readily relatively to the crank-shaft, without disturbing the gear-wheels. Considerable attention is paid throughout to conveniences of this sort as, having had the main essentials of the design successfully established for some time past, the makers have been able to devote more of their attention to matters of refinement. The engine cylinders form a monobloc casting, and they are cooled



The back axle of the 15-h.p. Straker-Squire.—Note the accessibility of the differential-gear and the wide double brake-drums.

by thermo-syphon circulation, the action of the radiator being assisted by a belt-driven fan. The five-bearing crank-shaft is lubricated by oil pumped under pressure to the bearings, and there is a tell-tale oil on the dash which shows the driver whether the pump is working.

Transmission takes place through a leather-faced cone-clutch, and the gear-box, as already mentioned, provides three forward speeds and a reverse. The back-axle is a distinctly interesting feature of the Straker-Squire design, notably on account of the accessibility of the differential mechanism, which can be removed independently through an opening in the back of the differential-casing. Riley detachable wire wheels are commonly fitted to the Straker-Squire cars, which have a wheel-base of 9 ft. 3 ins. and a track of 4 ft. 5 ins.

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Golf at Coventry.

CONSIDERING the enormous hold that the game of golf has obtained upon all classes of the community, it is not surprising to find a large proportion of devotees of the "Royal and Ancient" within the ranks of the motor trade. Naturally, the element is very strong in Motoropolis and, Coventry being essentially a businesslike place, the golf club is conducted along business lines. At least, that is the impression we get from a perusal of a booklet to hand, giving a short history of its development and a description of the club's new course at Finham Park. This little volume can be obtained by any of our readers by writing the Secretary at the Drill Hall, Coventry. From what we read, we are certainly of opinion that the Coventry Golf Club has done well in its change from Whitley Common to its present course. Whitley may have been what golfers call a "sporting course," but even though the keen player may not be too cast-down when all his shots go astray into bunkers and gorse patches, he does not altogether think he is getting the best out of the game when the course is dotted with human hazards. The new course, however, is quite a different affair, and one of these days we hope, in the person of the only tame golfer on our staff, to make personal acquaintance with the Coventry Club's new home.

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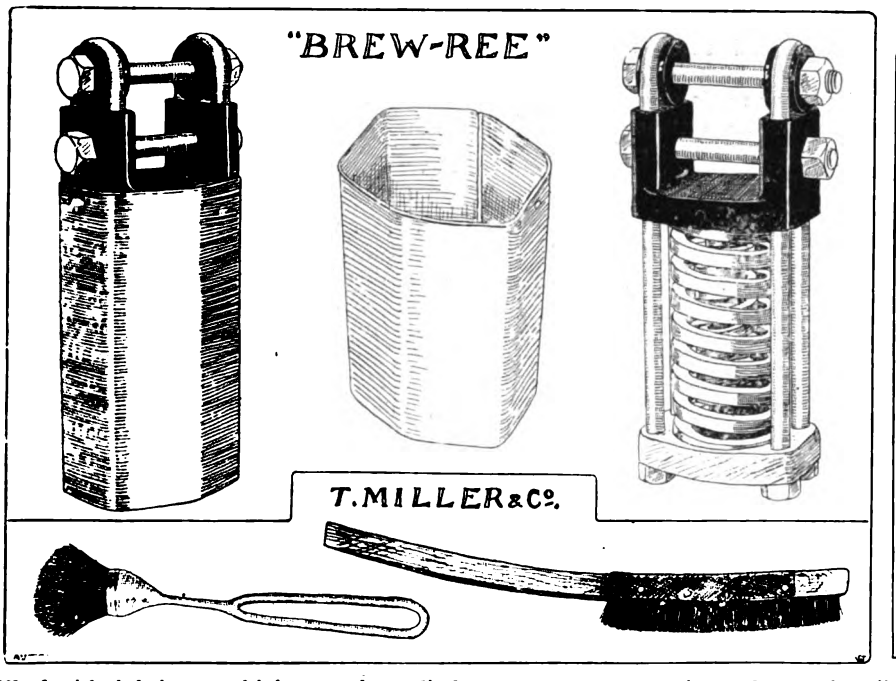
The Army and Motor Lorries.

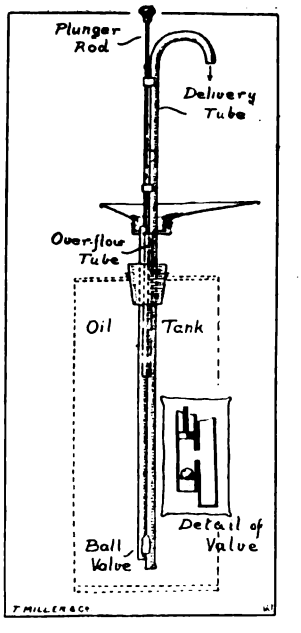
FURTHER particulars have now been issued by the War Office concerning the subsidy scheme for petrol-driven motor lorries. For the purpose of the scheme two classes are arranged: (A) Vehicles capable of carrying a load of three tons, and (B) those capable of carrying a useful load of 30 cwt. The engines are to have four cylinders, and in class (A) the minimum bore is 110 mm. or 4½ inches, while in class (B) the minimum bore is 100 mm. or 4 inches. A specification to which enrolled vehicles must conform has also been issued, and before being accepted they will have to undergo a trial not exceeding 80 miles to the satisfaction of an inspector. The enrolment of any motor lorries entitles the War Department to purchase it in the event of any portion of the Army Reserve being called out for permanent service, and the machine must be delivered within 72 hours' notice. The machines will be subsidised for a period of three years, and in addition to the annual subsidy of £20 per lorry the owner will receive a purchase premium of £50 and a further purchase premium of £10 if the lorry is provided with a body of an approved type for the carriage of meat slung from the roof. Full particulars of this scheme can be obtained from the War Office, London, S.W.

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ACCESSORIES OF THE WEEK.

A new shock absorber, or more properly, auxiliary spring, has recently been marketed by Messrs. Brew and Reeves, of 330, Kennington Road, London, S.E., under the name of "Brew-Ree." In external appearance it is noticeable in having a single casing of thin brass, which can be plain, polished, nickelled, or in dull black finish according to taste. This casing surrounds the steel framework, and the two concentric springs, the joint action of which is effectively to prevent all periodic bounce, also compensating in a larger degree than a single coil spring for variations in load, *e.g.*, passengers or luggage. The brass casing is in the form of a cup, with a soldered bottom and fitting the framework tightly at the top, so that it can be half filled with lubricant, which may be relied upon to splash about and keep the bearings well oiled without pouring all over the outside and attracting dirt and dust. The retail price of the "Brew-Ree" ranges from £3 10*s.* to £4 10*s.*





Many more people than is now the case would buy oil in large quantities, say by the barrel, were it not for the waste usually associated with drawing small quantities from a large supply, and the mess caused by returning any residue not immediately wanted. Messrs. T. Miller and Co., of 66, Victoria Street, Westminster, have been selling for some time a well-made but inexpensive "Save-Oil" pump, which we illustrate, that is especially designed not only to prevent waste and mess, but particularly as a trouble saver. It is made in two sizes, selling at 11*s.*6*d.* and 14*s.* 9*d.* respectively, and appears in the light of a really sound investment. Our sketch shows the construction clearly, the operation being simple and as follows: — On drawing up the plunger-rod, oil is sucked up the long left-hand tube, past the ball-valve at the bottom of the latter, while it may be assumed, on the principle that oil, like water, finds its own level, that the delivery tube is also partially filled with lubricant. Depressing the plunger causes the valve to close, when the fluid is forced into and up the right-hand tube, discharging by means of the spout situated over the oil return tray. This latter has a small over-flow pipe at the bottom, and can easily be lifted off for cleaning. If ordinary care is exercised in keeping the tray clean, very little dirt should find its way into the barrel, but we would suggest the provision of a small piece of copper gauze over the orifice of the return pipe as an extra precaution.

The same firm market a variety of general accessories, one of their specialities being brushes. We illustrate a tyre paint brush, and a brazing brush, the latter having, to use an Irishism, wire bristles. The last-named will be found very useful for removing rust, &c., from engine castings and other metal parts of the car.

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To Consider Use of Alcohol.

At a recent meeting of the General Committee of the R.A.C. and Associated Clubs, a resolution was passed recommending the Special Petrol Committee now sitting to consider carefully the general use of alcohol as a fuel for internal-combustion engines. It was also suggested that a deputation should wait upon the Government to ask for the granting of special facilities for the manufacture of alcohol and its utilisation for the production of power.

Essex and Speed Limits.

The Essex County Council has applied to the Local Government Board for a ten-mile speed limit over various roads at Stanstead and Witham. Formal notice of opposition has been entered by the R.A.C., and those motorists in the neighbourhoods affected who have any views on the matter are asked to communicate with the R.A.C. Secretary. Incidentally, the L.G.B. has refused to grant the ten-mile limit asked for at Wanstead, and which was opposed by the motoring organisations.

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SELF-STARTERS.

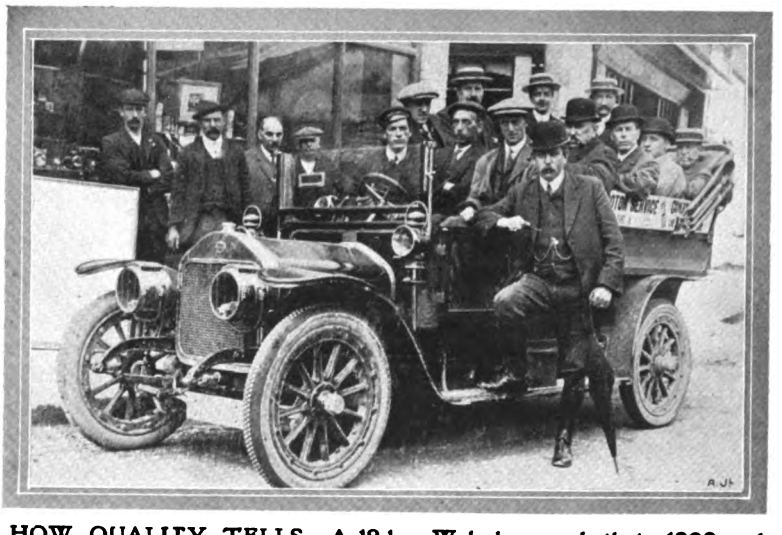
THERE is a letter in our correspondence columns this week, from Mr. S. F. Edge, which is not only uncommonly interesting, but singularly important, to wit. Unkind critics of Mr. Edge's fluent pen have sometimes been inclined to belittle the useful work that this enterprising pioneer motorist has so often accomplished, merely because on each and every occasion it served once more to bring the merits of the Napier car so prominently before the public eye. The useful work was there all the same, and very few men in the industry can lay claim to having shown more enterprise and ability than has been forthcoming from Mr. Edge in the development of every phase of motoring activity. In any case, for his influence on the popularising of the high-class British-built car, in the face of almost overwhelming foreign competition and a marked British prejudice for foreign-made goods, the British section of the automobile industry owes S. F. Edge a debt of gratitude that it will be difficult to repay.

On the present occasion he is drawing attention to the subject of self-starters, which, as we have been at some pains to point out in the past, is, together with electric light, the next phase of detail development in automobile construction. With Mr. S. F. Edge, we agree that these things have got to come; and with him, too, we believe that the man who does most to force forward progress is the sporting private owner who is not afraid to experiment.

It is not beyond the ability of any reasonably ingenious engineer to devise a theoretically excellent starting apparatus; we have yet to see any accessory for the motor car, however, that came into the world in full grown perfection. Evolution is a law of other things than life, and there is no question that if motorists want self-starters on their cars, those that can afford to do so must make up their minds to use such as are available at the present time. It was out of such enterprise that the modern magneto attained its present astounding reliability, for it must be remembered that this little machine, which sparks 75 times a second without a murmur — just think of it—is far and away the most wonderful thing on the modern car, yet began life as a very doubtful acquisition. We can well remember some of the earliest that came over from France being sent round to this office for inspection as curiosities—and as curiosities some of them remain.

So, too, it may prove with the self-starter, but in any case it is only out of the continued experience of actual users that we shall ultimately evolve anything that is in keeping with the modern machinery of the car. Mr. Edge has been delightfully frank as to his experiences, but it must not be thought that he is in any way trying to put a spoke in the wheel of those who make and regularly fit apparatus of this order. Very naturally he realises, as other manufacturers realise too, that the refinement of the modern first-class car is a jewel of great price, and he has small inclination to see the Napier cars take the onus of the misbehaviour of any relatively untried device for which the firm can hardly assume responsibility, but which, if fitted, is, nevertheless, vital to the satisfactory performance of their machines. It is often better in these things to be frank rather than secretive, for there is still a sporting element in the motoring world, thank goodness, and those that belong to it deserve some expression of appreciation of the efforts they make on others' behalf.

There is, of course, an aspect of this subject that needs to be regarded from another point of view, namely, that engines of different kinds may exhibit different characteristics under the action of the same self-starting mechanism. Thus it may be, and indeed we believe that such is the case, that engines of, shall we say, the typically American type, are more apt to facilitate good results than the high compression high efficiency motors that are more characteristic of European practice. These considerations are at any rate in the province of the automobile engineer, and in the meantime we have the excellent performance of the Cadillac, recently tested under R.A.C. supervision, to encourage all and sundry who may think it worth while to work in this field.



HOW QUALITY TELLS.—A 18-h.p. Wolseley car, built in 1906 and put into service in January, 1907, as a hiring car by the Barnstaple Motor Company. After covering some 50,000 miles over probably some of the worst roads in England until January, 1912, this well-seasoned car, after an overhaul in February last, was fitted with a brake body for eleven passengers, and is now running in regular service between Combe Martin and Ilfracombe, the car being seen just about to start from the former picturesque village.

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A New Ordnance Map.

ON behalf of the Ordnance Survey authorities, Mr. T. Fisher Unwin, 1, Adelphi Terrace, W.C., is publishing some new small scale maps, which are different in some ways from the ordinary Ordnance Survey Maps. They have been produced by the authorities as the result of co-operation between them and local booksellers and stationers in the area which they cover. The maps are not part of a series but prepared on lines which have been laid down after local advice has been digested, and it is this feature which renders them so useful in certain localities. The one before us extends from Bromyard on the West to Bromsgrove on the East and from Kidderminster on the North to Tewkesbury in the South. The scale is one inch to the mile, and the maps are indentical in style and system of colouring with the excellent Ordnance maps previously published. The prices, 1*s.* 6*d.* on paper, 2*s.* on linen and 2*s.* 6*d.* dissected.

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By VICTOR HART.

Lubrication Defects.

Since motor bicycles became commercially successful, improvement has never ceased and the most captious critic can but find fault with minor details that may be irritating but do not affect the continued good running of machines. Yet one really important exception must qualify unstinting praise and until this particular failing is remedied owners have good cause to complain. Chaotic lubrication was the item of design which created as much ill-feeling 10 years ago as accumulator coil ignition, which statement conveys ample information to those who struggled with 1902 monstrosities. Then, the universal method or so-called engine lubrication was a small hand-pump that had the piston pulled up by an external handle after a two-way tap had been moved in one direction, and having drawn up a full charge of oil from the tank, the tap was reversed and a push of the handle sent the oil into the engine. Or rather, the oil was so intended to travel according to the idea of the machine maker, but more often than not best part found its way outside for decorating the crank-case with a sticky mess. Coned ends to pipes and substantial union nuts were of the future, for to dare attempt the job of turning a union nut to the verge of oil tightness meant a job for a repairer in renewing sockets or pipes.

Now, the ancient oil-pump predominates and I can reckon only half a dozen machines that are one stage better. Save for that small minority, the hand-pump is still beloved by manufacturers. To be accurate, they must be credited with abolition of the annoying two-way tap, the existing arrangement being worked by a simple pull up and push down of the piston handle. To my mind, simplicity is given at the expense of convenience and certainty; hiding the pump barrel inside the oil tank makes it a matter of pure luck whether or no a full charge reaches the engine at each down stroke, whilst the pump and its casing occupies so much space that the capacity is reduced by about one-third. The obsolete glass barrel pump possessed the advantage of accurately displaying the quantity sent down the outlet pipe, and although the very early patterns frequently cracked, later designs with metal casing nearly enclosing the glass were quite good. The decreased tank capacity has been still further reduced since the fashionable round end tanks came into vogue. Were it possible to make comparison by measurement, there is not much doubt that the old style tank—the Excelsior would be a good example—would have held nearly double the quantity of oil that the tank of a 1912 mount will carry.

Dirty Crank-Cases.

Just at present there is much talk in club circles of poorly constructed engines that exude oil from every possible and impossible place. Corrobation is lent to these complaints by the dirty oil which smothers the exterior of most engines, as well as the driver's lower garments after a long day's journey. But after trying many 1912 machines I emphatically declare that as regards lightness of the crank-case joints and crank-shaft bearings against oil leakage, it is rare for one to be able to discover a particle of oil outside if the right quantity of oil has been supplied. The reservation qualifies all the praise I am willing to give makers for the splendidly constructed engines they now regularly produce. Why do manufacturers take immense trouble to turn out crank-cases with perfectly accurate joints and spend large sums of money in machine tools for the same object? The answer is that they are catering to the demand for a clean engine. The reply to that is a further query. What benefit is it to the owner of the machine to know he possesses an engine equal to a watch in its beauty of fitting, when the manufacturer stultifies his own efforts in one direction by defeating them in another? As the result of many experiments, I have proved to my own satisfaction that the best engines can be made as dirty as the worst, externally, by persistent abnormal lubrication for 100 miles. The few instruction books emanating from factories insist upon drivers forcing a half or full charge of oil to the engine at regular intervals of so many miles, the distance varying for each make. The good intention presumes the fitting of a mileage recorder upon every machine on the road, and as hardly one per cent. of riders own these instruments, the other 99 per cent. must rely upon their judgment. After lamp-lighting time, the judgment notion has to be dutifully regarded by every motor-cyclist, as the gentlemen who so nicely tell us what to do in daylight somehow overlook the fact that a few of the crowd occasionally use the roads when artificial illumination is needed.

My experiments were undertaken with the sole object of verifying certain theories previously published, that haphazard lubrication creates externally dirty engines and in every trial a speedometer was fitted. On my first test, I drove at the usual rate; as fast as I desired on the open road, slows for corners and villages, and full throttle up stiff hills. I could not keep eyes on speedometers as well as road, so the lubrication regularity was forgotten and I fell into the old hit and miss method. Another day brought a saner plan, viz., a steady 20 m.p.h., up hill, down hill and on the level, except for traffic and villages. The day mileage recorder was set to zero, and every time the unit hand showed nought, some oil was pumped. Four makes of engine, that friends declare are always dirty, were tried by me for 100 miles, each receiving a definite amount of lubricant at fixed mileage intervals; the end of each run showed a few specks of oil on one engine but the others were clean everywhere. But those four trips were not pleasure rides, they were monotonous schedule time journeys, and it is ridiculous for makers to expect men will ride in such a manner. Giving too little oil means seizure of a piston

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or big-end bearing, and too much oil necessitates dismantling the engine to scrape off carbonised oil every 1,000 miles. The latter trouble also causes a gradually increasing loss of power not only at the engine, but from back pressure caused by the silencer outlets being choked with burnt oil. We all want mechanically operated oil-pumps that will automatically deliver the correct quantity, just the same as are found on the cheapest cars.

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Notes from New York

THE fiscal year of the United States ends at June, and the official figures which have just been published regarding the imports and exports during that month, and also the previous twelve months, enable some interesting comparisons to be made. For the twelve months ending June, 1912, 21,727 cars, valued at $21,550,139 were sent out of the country, as against 11,803 cars ($12,965,049) in the previous twelve months, and 6,926 cars ($9,548,700) for the twelve months ending June, 1910. It will be seen that the average value has gone down from $1,381 in 1910 to $1,095 in 1912. The heaviest buyer was, of course, Canada, which took 6,288 cars, Great Britain coming next with 5,716, and British Australasia third, with 3,625 cars. The remainder of the exports were distributed as follows: South America 1,611, Asia and other Oceania 1,137, France 574, Germany 288, Italy 211, other Europe 1,233, Mexico 273, West Indies and Bermuda 329, other countries 482.

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The figures for the month of June show that 1,941 cars, valued at $2,116,174, were sent out from the States, the figures for the previous June being 1,554 cars, valued at $1,702,872. Canada showed a substantial increase, as also did France, Germany, and Italy, although the latter only took 67, 27, and 42 cars respectively. But Great Britain, Australasia, and Mexico considerably reduced their purchases. The value for Great Britain went down from $529,382 in June, 1911, to $222,961 in June of this year. The Australasian figures shrunk from $206,130 to $143,376, and the Mexican takings from $40,861 to $8,470. During the month, 327 cars were sent to Great Britain, 755 to Canada, and 146 to Australasia.

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The figures regarding the imports show that, although there was a considerable decrease for the month as compared with the previous June, the totals for the twelve months show an advance. In the month 42 cars, valued at $100,927, were brought into the country, as against 117 cars, valued at $256,514, in June, 1911. France sent 21, Great Britain 7, Italy 5, Germany 3, and other countries 6. For the twelve months ending June the figures show that 963 cars, valued at $2,134,181, were imported, while for the preceding twelve months the figures were 888 cars, valued at $1,898,843.

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Motor engines have only been classified separately during the past year, so the figures cannot be compared with the previous one. During the year ending June, however, 6,891 engines, valued at $778,098, were exported. For the month of June the shipments were 547 motors, valued at $51,818, giving an average value of $95 per motor, while in the previous month, May, the 571 motors which were sent abroad averaged $118.

The figures regarding tyres show that for the twelve months ending June the value of the tyres sent out of the country was $2,657,809, an increase of 27 per cent. over the previous year's figures of $2,085,107. The value of the exports in June, 1912, was $321,898, as against $246,625 in June, 1911.

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In order to demonstrate the stability of the "American" underslung cars, the firm have been exhibiting in their different sale rooms one of the cars tilted at an angle of 55°, at which slope the outer wheels are raised some 46 ins. higher than the inner wheels, and yet the car does not overturn. During some tests which were made to demonstrate this point, it was found possible to tilt the car at an angle of 60° without upsetting it.

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Several electric cars, which are practically impossible to tell from petrol cars from a passing glance, are being placed on the American market, and are apparently finding a good deal of favour. One, the Churchfield car, besides resembling the petrol car in having the usual bonnet, has the control arranged above the steering wheel, while it is also equipped with a two-speed epicyclic gear, a somewhat unique feature for this type of vehicle.

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Reviving Roman Roads.

A SPECIAL Committee of the Roads Improvement Association is now investigating the whole system of the old Roman Roads in this country to decide whether, in view of the facilities now afforded by the Imperial Road Improvement Fund, any action can usefully be taken to bring any of the roads, now disused, into service again. The stability and thoroughness of construction of the old Roman roads are well known, but during the railway era a number of them became obsolete. It has frequently been suggested that, now that traffic is rapidly returning to the roads, many of the old Roman highways might be made up and utilized for cross-country traffic. It is unfortunately a fact, however, that many of these roads have been relieved of their metal by adjoining landowners and others, but it is believed there are still a large number which, although grass-covered, retain their old foundations. The Secretary to the R.I.A. (Mr. Wallace E. Riche, Caxton House, Westminster, London, S.W.) would be glad to receive, for the information of the Committee, any suggestions from tourists and others who have taken an interest in this matter.

Motor 'Buses in Algeria.

ACCORDING to a note in the *Board of Trade Journal*, the use of motor vehicles is constantly increasing in Algeria. This especially applies to the use of vehicles for the transport of mails and passengers in outlying parts, and the sum of £1,000, to be increased later, has been earmarked by the authorities for the granting of subsidies to concerns willing to inaugurate motor 'bus services.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act :—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

Special committee meeting held Wednesday, August 14th. Present: Mr. A. J. Allison, presiding, Messrs. Khan, Swaits, Oliver, Dean, Emmerson and Darmaros.

The chairman explained that the reason for calling the meeting was owing to the fact that during the past three weeks the Society had been robbed of a considerable sum in postal orders, which had been taken from the letter-box. The secretary had been successful in catching the thief. The question to be considered was what course should be adopted. The secretary was inclined to the belief that another was implicated. Not only had money been stolen, but there were many enquiries regarding letters unanswered. It would appear that letters which did not contain cash had been destroyed.

Mr. Darmaros, International representative, reported having sent during the time stated in which the robberies were committed, the information desired in order to affiliate with certain chauffeurs' societies in France. He had written at considerable length, well into the early hours of the morning, a detailed report of these clubs, and enclosed printed matter, balance sheets, &c., for the secretary's information, and it was very disappointing to know that all his work was made useless by a petty thief. After discussion, each member was asked to state his view as to prosecution, and it was eventually decided to leave the matter in the hands of the secretary and the solicitor.

The usual weekly meeting was held on Monday last, when there were present: Mr. A. J. Allison, presiding; Mr. A. Holmes, Deputy Chairman; Mr. H. Pye, Trustee. Committee: Messrs. Kahn, Oliver, Emmerson, Dean, Darmaros, Rawson and Tipper.

Applications for membership having been dealt with, the secretary reported that he had not been able to implicate any other person in the theft of postal orders. The amount missing was being added to daily. He had seen several of the cashed orders, and there was no doubt that they had been signed by the same hand. He had, however, applied to inspect about twelve others which had been posted after the culprit declared he had ceased his dishonest practices. If this were the truth, someone else had taken up the work, but the secretary very much doubted it for the reason that the thief could not be believed. After these other postal orders had been inspected, action would at once be taken by the solicitor.

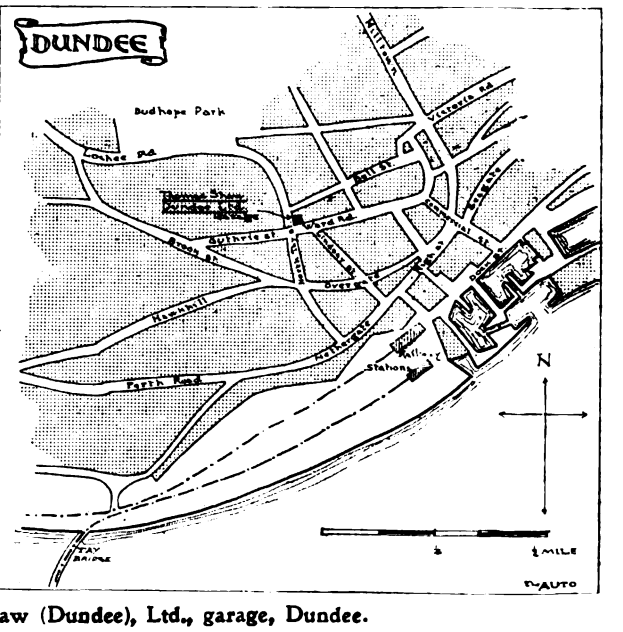
An estimate was submitted and accepted from Messrs. Thurston and Co. to fix the bagatelle table in the clubroom.

The secretary reported that a member had been charged with making improper use of his employer's car. The information was given by the employer, who had engaged the member through the bureau. The matter had been investigated, and he was now in a position to submit letters dealing with the case, which prove conclusively that the member acted under the orders of his employer when taking out the car. The committee agreed that the member acted in good faith, and the secretary was instructed to write his late employer to this effect.

The committee agreed to affiliate with the Motor Drivers Approved Section, for the convenience of members who now have an approved society whereby they can obtain the benefits of State Insurance, for which they are compelled to insure. Many members have reported the fact that their employers will have nothing to do with the Act, or allow them to do so. This is really a serious matter, and likely to lead to trouble. The Act is on the Statute Book, and however much we may dislike it, we have no option than to obey the law of the land or take the consequences, therefore members are advised to obtain insurance cards from the secretary and fill in the application form. On receipt of insurance card, it should be presented to the employer, and returned to the secretary at the end of each quarter fully stamped. There is no charge for depositing your card in any approved society, where you obtain all the benefits under the Act, as against benefits only to the amount paid as a Post Office depositor. Members should therefore deposit their insurance cards in the Motor Drivers Approved Section.

The committee have been pleased at the number of friends who have congratulated the Society upon the result of the L.C.C. case. The N.S.C. is always willing to act justly with regard to all regulations governing societies, and as willing to fight any considered





N.S.C. GARAGES, No. 10.—Thomas Shaw (Dundee), Ltd., garage, Dundee.

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injustice. If the L.C.C. had commenced with the R.A.C. instead of our Society, it would have been perhaps more to their credit. The case reminds one of the child and the wasp. After playing with the wasp, the child received a sting which somewhat astonished him, and gazing at the wasp he murmured, "You're a very pretty insect, but ain't your blooming feet hot!"

Accepted for Membership.

Hugh Flynn, Manchester.
George Durrant, Windsor.
William C. W. Gardner, Cheltenham.

Applications for Membership.

R. G. Tipping, Newport, Salop.
R. H. Cooke, Athenry, Co. Galway

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2s. 6d. Subsequent subscriptions, 2s. per month. Payable in advance on the 1st of each month. Badges, 1s. 1d., post free. Members may pay yearly 21s., or half-yearly 10s. 6d., payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

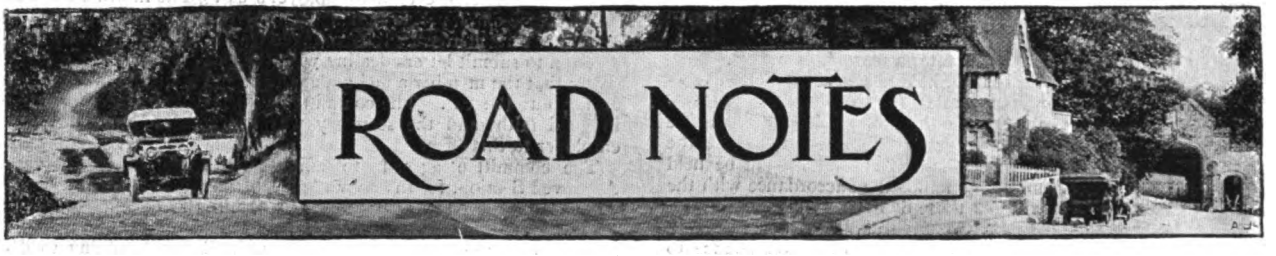
Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2s. 6d. (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed

Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.



COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Members are advised not to leave their vehicles outside the Red Lion Hotel, Hatfield, on the footpath as complaints have been lodged. Under repair full width two miles north of Morpeth, special care at night as it is not protected. Road surface is bad between Grantham and Melton Mowbray.

LANCASHIRE.—Stone setts being laid half-width in Walton village 1¾ miles south of Preston, lighted at night, special care necessary as it is very dangerous here. Members are requested to slow through Carnforth.

Lancaster–Keighley Road.—Members are requested to proceed with special care through High and Low Bentham.

YORKSHIRE.—*Leeds District.*—Timing in hand at Moortown, Leeds. Timing through the 10-mile limits in Burley-in-Wharfedale, and Ilkley, ¼ mile west of Malton from the first milestone. Control also being worked between Arthington and Poole, on the Otley–Boston Spa Road, and in Chapeltown Road, Leeds (within the borough), from Reginald Terrace to St. Mary's Road.

Harrogate.—Control working on the main road from Harrogate to Leeds just outside the Harrogate limit.

EAST.

Members are requested to slow through Wickham Market between Woodbridge and Saxmundham.

Newmarket–Royston Road.—Closed between Pampisford Hall Gates and Bourne Bridge; alternative route Babraham.

SOUTH.

BATH ROAD.—Members are requested to proceed with special caution between Hounslow and Colnbrook, and to proceed slowly through Maidenhead. Under repair between Twyford and Sonning cross-roads, also between here and Reading. Members are advised to drive slowly at night from Sonning railway bridge to about ½ mile towards Reading.

BRIGHTON ROAD.—Members are requested to interrogate the patrols at Kingswood cross-roads. Timing between Reigate and Dorking. Roller working on Reigate Hill. Main road through Redhill is being patched in several places. Under repair between Crawley and Peasepottage whole width.

BUCKS.—*Eton–Slough Road.*—High Street, Eton, will be closed until the 24th for repairs, alternative route Keates Lane, Meadow Lane, and Brocas Street.

KENT.—*Dover Road.*—Timing is likely to be in force at Bexley Heath, Shooter's Hill, Blackheath and Deptford.

LONDON DISTRICT.—On account of timing operations, special care is necessary: Regent's Park Road, near Church End Station, Finchley, Golder's Green, Redcliffe Gardens, the Boltons, Earl's Court Road, S.W., Victoria Embankment, near Albany Gate, Regent's Park, Mitcham, Morden, Sutton, Banstead, through Croydon to Purley, between Wimbledon and Ewell, Hounslow–Staines, Hounslow–Colnbrook, Putney Heath, Harlesden, Maida Vale, Highgate, Holloway, Lewisham High Street; also between Sudbury tram terminus and Harrow Hill.

MIDDLESEX.—Control working on Staines–Sunbury Common road.

Wood Green.—For the same reason, special care is necessary near the junction of Bounds Green Road and Jolly Butcher's Hill.

SOUTHAMPTON ROAD.—Controls are being worked at night through Egham. On the Southampton–Christchurch Road, controls are likely to be working between Christchurch Barracks and Iford Bridge; also at Pokesdown Hill.

SURREY.—Members are advised that on and after the 19th inst. all vehicular traffic over the bridge at Woodbridge, Guildford, will be stopped during the re-construction of the bridge. Traffic from Guildford to Worplesdon and Bagshot will proceed by way of Stoke Bridges and Stoughton road, and from Guildford to Aldershot by way of the Hogs Back or *via* Stoke Bridges and Cemetery Road, Guildford.

Controls are likely to be in force at the undermentioned points:—South Godstone Station, between Ewell and Epsom, at Surbiton, between Kingston and Leatherhead.

Croydon.—Until August 20th tramway track under repair between West Croydon and George Street; alternative route, Poplar Walk, Wellesley Road, and George Street.

SUSSEX.—Members are specially requested to observe the 10-mile limit at Uckfield.

WEST.

Exeter–Bodmin Road.—Patching being done, and care is necessary on the east side of Okehampton. Members should beware of straying cattle on Bodmin Moor.

Bodmin–Launceston Road.—Main road leading through to Bodmin, west of Launceston, has a very bad surface for half mile commencing at Western Road, also unrolled metal; also 1½ miles E. of Launceston at Polson Bridge there is a lot of unrolled metal, covering 200 yards.

Cardiff District.—Timing likely to be in hand in Cathedral Road from Cowbridge Road.

MIDLANDS.

COVENTRY ROAD.—Members are requested to slow through Redbourne, Fenny Stratford, and Stony Stratford. Tarring at Bickenhill on to Yardley, clear at night.

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Chauffeur's Experiences

Chauffeurs are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The Auto., 44, St. Martin's Lane, Charing Cross, W.C.

76.

Tuck Away Your Hood-Straps.—Last Saturday I had a very narrow escape from what might easily have been a nasty experience. I was out testing a chassis, and was going to Southend-on-Sea. On the winding road between Billericay and Rayleigh, in one of the numerous corners, I met a large Fiat car; neither of us was going particularly slow, but as we both kept to our near side all would have been well. But it had been a very showery afternoon, and I daresay the driver of the Fiat had had his hood up a number of times. Unfortunately, however, when he had folded it down last he had forgotten to fasten his hood-strap, with the result that when we were passing each other right in the corner this strap, which was hanging down behind, swung out towards me, and would have dealt me a very nasty lash across the face. As it happened, however, I just managed to duck down, but not enough to escape entirely; I got the buckle of the strap grazing the top of my head, and carrying off my cap. Considering that we were both going well up to the legal limit, I think myself very lucky for having been let off so lightly, and I am sure that the Fiat driver never knew what a narrow escape I had. It was a good thing that I only had a bare chassis, for I dare not think out what would have become of my eyesight if the heavy buckle had struck the wind-screen that is usually fitted to my car, and which comes fairly close up to the driver's face.

This experience of mine, however, should teach drivers safely to tuck away the hood-straps when folding down the hood on the road, or else they may land themselves or their masters in Court with heavy damages to pay.—*F. E. Lane.*

77.

Water in the Petrol.—I was much interested in the paragraphs that appeared under this heading in your page of Chauffeurs' Experiences a short time ago, because I was very much troubled with water in the petrol-tank and carburettor. But in my case it has puzzled me and many others for a long time to find out where the water came from. I never fill my tank up without using a funnel that has a very fine gauze strainer, but in spite of this precaution, I often found water in the filter and sometimes in the carburettor. The petrol tank on my car is situated under the front seats and the petrol flows by gravity to the carburettor so that condensation from exhaust gases is out of the question. While I was up in town during the season I spent a good deal of my time at the new N.S.C. clubroom, and while talking "shop" one afternoon I mentioned my difficulty. One of the men there told me to use a clean chamois leather as filter, and I took the tip with the result that I have never been troubled with water in the petrol since then.

But it seems to me that the use of a "shammy" as filter is not an entirely unmixed blessing because about six weeks afterwards, when returning with an empty car from the station, my engine started the old game, that is, she slowed down, popped a few times, and then gave up the ghost, just as she had done when there was water in the carburettor. Investigation soon showed that no petrol was coming through, although the tank was nearly full and the tap "on." The petrol pipe also was quite free, but when I looked into the filter I found it entirely choked by what to all intents and purposes looked like a yellow felt washer. I could not understand how the washer could have got there; it was perfectly round and flat, and it fitted snugly into the under side of the wire gauze filter. Well, I took it out and all was right again with my machine. But I suspected some mischief and wanted to have a good look at that felt washer when I got home, so I wrapped it in paper and put it into my pocket. But when I unfolded my little parcel at home the washer was gone, and instead of it I only found some fluffy dust in the paper. From this I conclude that the petrol when passing through the chamois leather carries tiny particles of fluff down into the tank; these particles seem to collect in the filter, and when not removed from time to time clog it entirely as in this case. Of course, what at first appeared to be a felt washer while it was moist soon fell to pieces when it dried in the warmth of my pocket.

Ever since then I made it a habit to clean out the petrol filter regularly every fortnight, and I have kept my engine running perfectly. There never is the slightest trace of water anywhere in the petrol system.

This experience, however, shows that whatever petrol companies say, the fact remains that a good deal of water finds its way into the tanks with the petrol that comes out of the tins, simply because it has been in the tin before it was opened.—*R. Thomas.*

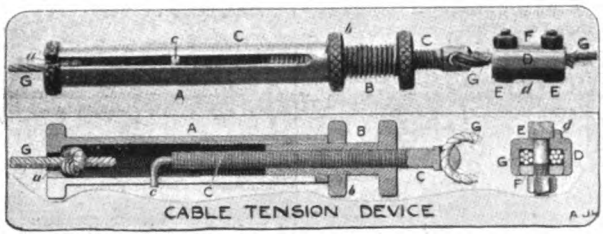
78.

A Good Soldering Flux.—Some weeks ago "Tinker" recommended resin dissolved in methylated spirits as a good soldering flux, especially for electrical work and in places where acid is undesirable, as, in the many little odd jobs our well-meaning cook uses as an excuse for visiting my workshop. The flux is quite good as far as it goes, but it is highly inflammable and you want to keep it at a safe distance when soldering with a blow-lamp. For jobs of this kind I have used a flux consisting of a mixture of powdered resin and turpentine, which answers very well, and besides having all the advantages of "Tinker's" flux, it is not so highly inflammable and can safely be handled anywhere on the bench with the blow-lamp going.—"*Bob.*"

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FOREIGN MISCELLANY.

Several makers still adhere to the (in our opinion) unsatisfactory method of cable-operated brakes, while a large number of old cars are still so fitted. To owners of such vehicles who are not troubled by the stretching of



the cables, the tightening device just brought out by Messrs. Mestre and Blatge may prove a welcome improvement. The appliance is illustrated herewith.—*Omnia.*

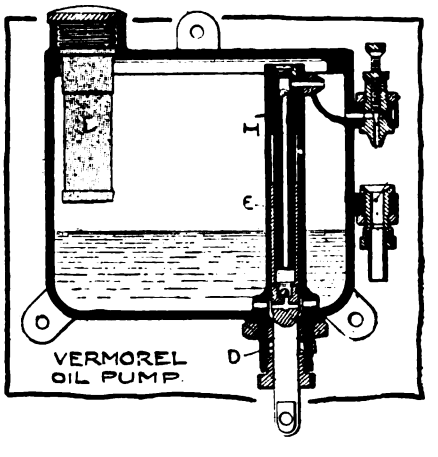
Graphite paint for exhaust.—The pipes about a car often take on a bad appearance which spoils the look of the machine. The exhaust pipe will often take on a neglected, dirty, and generally unkempt look very rapidly. Owing to the adverse conditions under which the pipe is compelled to work, that is, the heat and the impure gases with which it comes in contact, the paint rapidly peels off. A prominent automobile manufacturer solves this problem by using one-third graphite to two-thirds linseed oil. This paint sticks to the pipe and does not lose its blackness. It can be readily mixed up by any automobilist, and is applied with a brush in the same manner as any other paint. With the use of this recipe ill-appearing exhaust pipes are not a necessity.—*The Automobile.*

Copper tubing and the bending thereof.—Copper tubing that is to be bent should be soft or annealed; otherwise it is apt to crack when too sharply bent and to flatten at the curves. Tubing that is too hard may be softened by the simple expedient of heating it to a dull red and allowing it to cool. This may be done by passing the tubing slowly through the flame of a gasolene torch, or even through the flame of an ordinary gas stove, if the tubing is of small size. Excessive heat is injurious to the metal; a rather dull red is sufficient.—*Motor World, N.Y.*

The dust and dirt drawn into the engine space by the radiator fan, more especially in summer, has afforded legitimate cause for grumbling to many a car owner and chauffeur. Furthermore, some part of this dust inevitably finds its way into the cylinders of the engine, there to increase the deposit on piston heads and combustion chamber walls. In the Delage cars which won the Coupe de *l'Auto* last year the engine space was entirely isolated from the radiator by means of an internal shield, the current of air passing between it and the outside bonnet, out through louvres in the sides of the latter. A correspondent in *Automobil Welt* suggests that some improvement in this direction may be made by placing a fine gauze screen immediately behind the radiator; the screen should be easily removable to facilitate frequent cleaning, as such a device would soon clog up owing to the large number of small insects so caught, whereby the efficient working of the radiator might be seriously impeded.

A plea for better lubrication from America!—The most glaring defect in American and foreign cars, as demonstrated in the Indianapolis 500-mile race, was the inadequacy of several lubricating systems. It is only safe to assume that wherever a connecting-rod bearing burned out or gave way it was directly due to lubrication. There were at least four cases of this. In each instance the explanation seems to lie in the stoppage of oil-pipes leading to the lower or upper connecting-rod bearings. In some, in fact in nearly all, of the races these pipes are of small diameter, and it requires but a small foreign particle to stop the oil flow and work the ruin of the motor. This condition points to the more general use of forced feed with high pressure to all of the important motor bearings. This problem is concerning American manufacturers, but it is also being wrestled with by the French, German, English, and Italian manufacturers. All of them are learning the inefficiencies of the varied forms of splash systems. All of them are also realizing the necessity of regulating the oil flow with the motor speed and motor work. What the eventual outcome of the lubrication question will be is not quite clear at present, but it is a certainty that the car of the future will have oil forced under pump pressure to all of the crankshaft and connecting rod bearings, with the possible elimination of splash in the crankcase. The big problem with motor lubrication is to get enough into the bearings and not too much into the cylinders. Too much oil has worked nearly as many, if not more, troubles than too small a quantity. In cylinder lubrication the problem is enough and only enough at the right time. The throw-off from the lower connecting-rod bearings and from the wrist pin bearings has proven adequate as splash for several cars for a number of years. With some of these it has been necessary to use the oil baffle plate in the lower end of the cylinder in order that too much oil does not get into the cylinder; and while some have been doing this with excellent results others have been doing everything to fill the cylinders with oil, with the result that smoking is general, there is much spark plug trouble, cylinders are soon coated with carbon, the cooling system is affected, ignition knocks develop and a host of troubles ensues. Look to getting the right quantity in the right place and at the right time. That is the problem.—*Motor Age.*

The oil-pump of the lubrication system of the Vermorel cars is illustrated herewith. The reciprocating part, D,



terminates in a sleeve, E, into which the fixed plunger, H, fits. Steel balls form the inlet and outlet-valves.—*Omnia.*

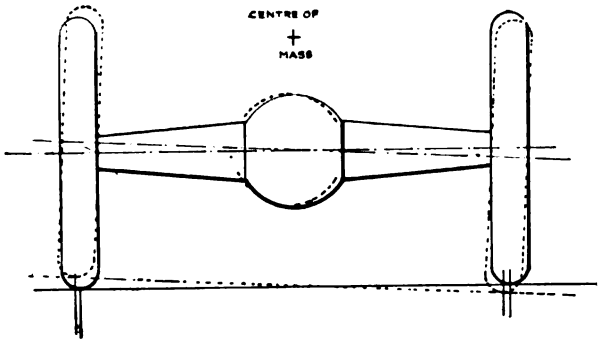
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CORRESPONDENCE.

Wheel Tracks on Roads.

SIR,—I hoped to have found in the AUTO. a letter from someone relative to a communication over the signature M. Jones in your issue of August 3rd enquiring if others had observed that the track of many motors over surfaces somewhat uneven were not straight lines but made up of a large number of curves of short radii.

I have been asked by several motorists for an explanation of these "rabbit-run like" tracks, and will endeavour to give an explanation. Before doing so, however, I think that this alone is substantial evidence of the reasons why cars, particularly of high centre of gravity, should be fitted with large section tyres. In order to ascertain that my views were correct I made a point of travelling close behind several landaulets and limousines when passing over roads which were somewhat uneven and it is clear, as one would theoretically expect, that on one wheel dropping into a depression, the axle tends to rotate about its centre of mass, and therefore the one end of the axle following the wheel downward does so, not perpendicularly, but at a radius approximately from the centre of the mass, consequently, the pressure on the tyre on the opposite side is diminished, anyhow, the tread in contact with the ground must move or



slide sideways as the result of the centre of the mass of the axle being above the level of the road and somewhere midway between the wheels. A very little consideration will show that this can easily cause the almost scolloped form of tyre track or marks on the highway because the weight on the average back axle, with wheels and the dead weight of the springs thereon, is so considerable, and there is no provision for this movement of the wheels relative to the chassis and body. The centre of gravity of the complete vehicle appears to be approached, and the centre about which the road wheels oscillate due to uneven road surfaces, and I think the tyre makers should bear in mind that this imposes the most destructive wrench on the walls of the tyre and the clinch. Obviously, the nearer the attachments of the springs are to the tyre where in contact with the ground the less serious will be this destructive action, particularly if the dead weight on the tyres is also minimised. I enclose a sketch which may perhaps clear this explanation; dotted portions showing the side-way movement of the tyres, due to lumps and depressions in the roadway. A. E. PARNACOTT.

Experiments in Self-Starters.

SIR,—In view of the interest taken in the above devices, I have been carrying out personal trials with various self-starters.

There are five principal types:—

1. Compressed air, with a compressor, air container distributor valve, and all the other necessary adjuncts made as part and parcel of the car when designed, with pressure up to 500 lbs. per square inch.

2. Spring type, which automatically re-winds itself once the motor is started.

3. Compressed air type, combined with carburetted air, with pressures up to say, 100 or 150.

4. Acetylene gas type, using compressed acetylene gas to the cylinders, which it afterwards ignited by a spark from coil or magneto.

5. Electric self-starter, consisting of small electric motor actuated by battery of accumulators.

These five devices seem to me to cover those which may be considered in the practical way to-day.

I find all of them have disadvantages, some more, some less, none of them, I think, would give satisfaction after a year's use, and all of them require a considerable amount of care and intelligence to keep them working properly, and as a whole, speaking from personal experience, I find their disadvantages infinitely greater than their advantages, but one cannot help recognising that the day must come when engines will be automatically started from the seat with certainty, without material expense or weight being added to the car, and without such complications as at present exist, which almost requires a specially trained man to keep them in order, with the little incidents which seem to occur.

Practically all these devices have shown that from a demonstration point of view they will start a car certainly and successfully hundreds of times a day, and keep on doing it I dare say for many days on end, but that is quite another story to wanting them to start your car when it has been standing for some time, and would possibly have been exceedingly difficult to start by hand with a starting handle. It is under these circumstances, when the self-starter is most wanted that it behaves badly.

Now to deal with the disadvantages of the various types:—

1. Compressed air type. The disadvantages are excessive weight and expense. The workmanship has to be absolutely perfect, and even then it will require a skilled person to keep the installation in order.

2. Spring type. This, on the face of it, is the simplest to operate, very certain in action when the engine is within its power to turn over, but once trouble does start—and owing to its great complications it is a certainty it will—only a most skilled mechanic will be able to put it into working order.

3. Compressed air type combined with carburetted air. This is excellent in many ways. The pressure is not very high, the installation is not so expensive as the others, but its disadvantage is that it requires a coil or special starting magneto to ignite the charge, and as the engine does not always stop in a suitable position for starting, a certain percentage of times it fails.

4. Acetylene type. I look upon this only as a passing phase, as compressed acetylene, I think, is illegal in this country, and there is no question it is dangerous. It also has the disadvantage of not always starting, the same as No. 3.

5. Electric self-starter. This, on the face of it, seems an ideal method of turning the engine round; but to turn over a big engine after standing all night in the cold requires a very large amount of power. And the installation is, in common with most of the others, heavy, and if installed in the best style would apparently be expensive. I think this is a reasonable proposition for small engines, providing the cost is not objected to. But when one remembers the trouble people got into with accumulators when coil ignition was used, it can easily be realised what the state of this self-starter and its mechanism will be in after twelve months' use with a large battery of accumulators to be kept in order.

At present none of the devices which I have tried, and am trying, appeal to me from the private user's point of view; but anyone who is experimentally inclined will always be able to get the latest form of self-starter fitted to Napier cars, and he can feel if he does have troubles that he is doing good work for motoring as a whole, because the self-starter will come. And it wants some private users to start experimenting, so that every difficulty may be more rapidly found out than is possible under present circumstances with relatively few of us experimenting with these devices. At present I must say my own motoring would be infinitely more pleasant if I did not find it desirable and necessary, from an experimental point of view, to have different forms of self-starters fitted to my cars. Therefore, every firm which fits self-starters we look upon as doing good experimental work for motoring; and to those purchasers who buy them and put up with their vagaries—which certainly will occur sooner or later—I think a great debt of thanks is due from the motoring community as a whole.

S. F. EDGE.

The Fuel Question and Road Tests.

SIR,—Since my suggestion appeared in the Press regarding the organisation of a race in the Isle of Man, to be run on paraffin, I have received many communications strongly supporting the idea, and I am gratified to note that it is looked upon with such favour.

There is no doubt, however, that the difficulty in arranging a race in the Isle of Man this year is almost insurmountable, as, owing to the holiday season, there does not appear to be sufficient time to make the necessary arrangements with the authorities.

I do feel, however, that it would be a very great pity if we have to wait until next year before some progress is made in the direction I have suggested, therefore it has occurred to me that a 2,000 miles reliability trial might be arranged on the lines of the reliability trials of the early days. It might be that there would only be comparatively few entries, but that is no reason why the trial should not be held, as the information obtained would be of very great value.

In order that only reasonably satisfactory devices should be allowed to take part, a preliminary trial would have to be held at Brooklands to satisfy the judges that all legal requirements in regard to visible exhaust were being complied with by each competitor,

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and marks could be given on a consumption basis. I think the results obtained would be surprisingly successful.

I notice that important claims are being made in respect to bi-fuel carburettors, and there is no reason whatever why the conditions should not be arranged so as to include bi-fuel devices.

I am not going back on my original suggestion as to the value of a road race, and I do earnestly hope that the matter will be taken up by the club, and a race organised in the Isle of Man at the earliest possible date, and in the meantime, if it is impossible to avoid delay in this direction, let us run—if possible, prior to the Olympia Exhibition—a reliability trial.

Very few rules would be necessary, and as there would probably not be many competitors, the organisation would be a very simple matter. The data obtained would be of the utmost use in connection with the road race to be held later. CHARLES JARROTT.

Refinements and Speed.

SIR,—We note that in your report of the Three-Litre Race in the current issue of the AUTO. you draw attention to the remarkable difference between the figures put up in the Class A record by Mr. Turner Smith on his Stoewer, and the average speed which the same car maintained subsequently in the above race on August Bank Holiday, 58·6 m.p.h. being his figure for the Flying Kilometre, while the Three-Litre Race was accomplished at an average of 60¼ m.p.h.

We have pleasure in informing you that Mr. Turner Smith had a "Solex" fitted to his car after obtaining the first record, the engine being otherwise absolutely unaltered, and the consequent improvement in speed which was shown in the Three-Litre Race was the result solely of this change.

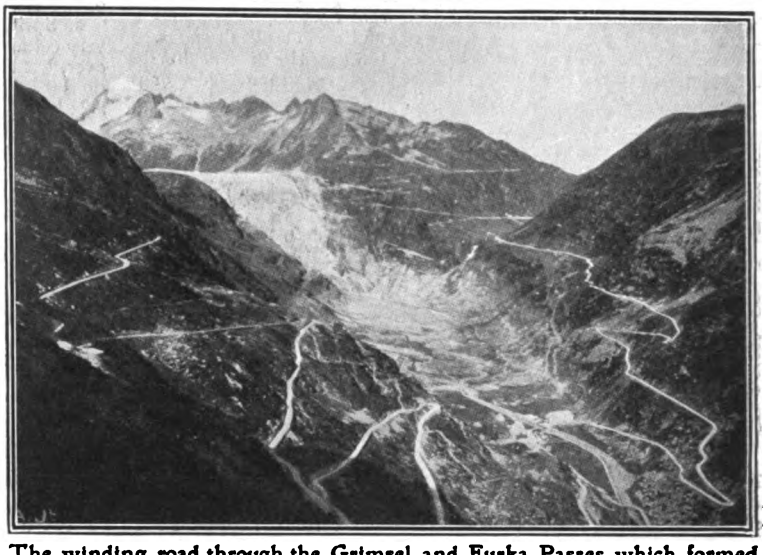
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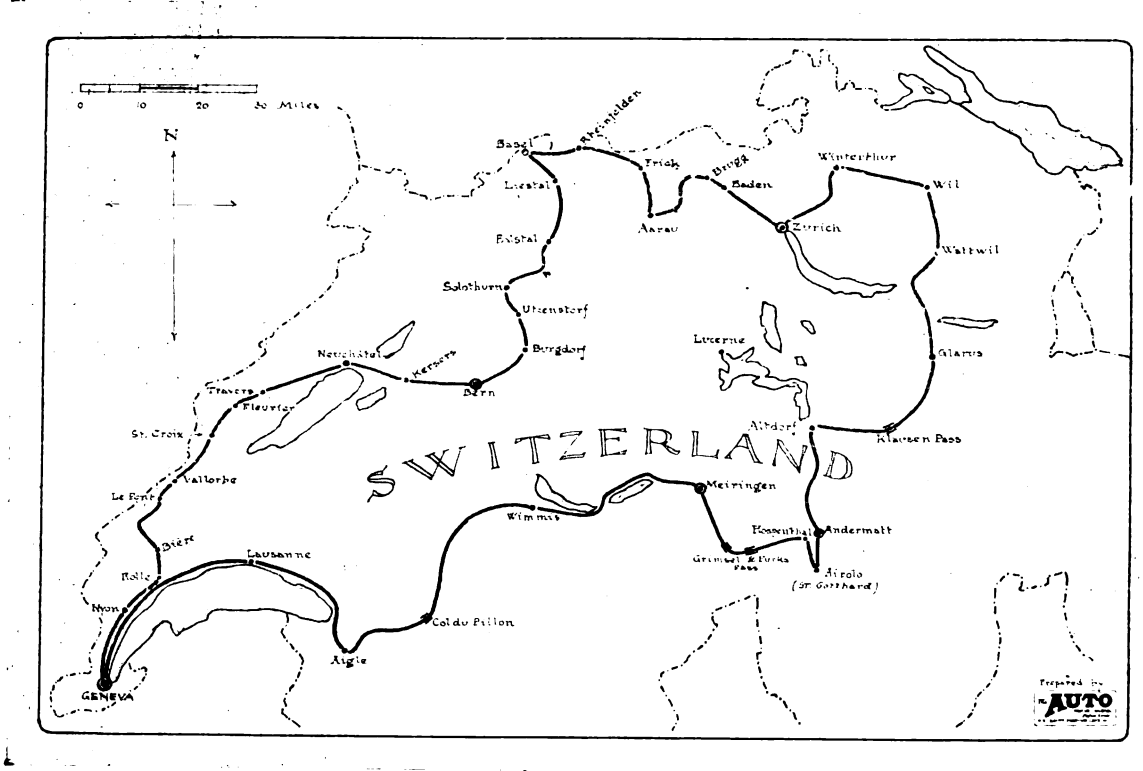
RACES, RECORDS AND TRIALS.

Swiss Alpine Tour Abandoned.

PARTLY in view of the lateness of the season and partly owing to the unfriendly attitude towards motoring in some of the Swiss cantons, the Alpine tour has had to be postponed. This seems to be a pity as the occasion should have been one calculated to afford considerable pleasure to enterprising motorists, and at the same time would probably have helped to break down the prejudice against the use of cars in Switzerland. We hope to see it revived next year upon the same lines, as it was well thought out by the organising club, as may be gathered from the following particulars of the programme, whilst a handsome trophy was available for the winner:—The distance was to be about 1,000 kiloms., and extending over five days from September 15th to the 20th. There were five classes arranged according to horse-power, the limits being 21·2-h.p., 31·3-h.p., 45·7-h.p., 60·8-h.p., and 75·5-h.p.



The winding road through the Grimsel and Furka Passes which formed part of the route of the Swiss A.C. Reliability Trials.



Map of the proposed route of the tour through the Alps under the auspices of the Swiss Automobile Club.

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Our sketch map shows the route which was to be taken by the cars. Starting from Geneva the first stage was one of 245 kiloms. to Meiringen, and the second day took the competitors to Andermat, a distance of 185 miles, a great part of which is taken up in the tortuous windings of the Grimsel, Furka, and Gotthard Passes. The third stage was to be Altorf, 190 kiloms.; the next to Berne, 200 kiloms.; while the last stage to Geneva totalled 210 kiloms.



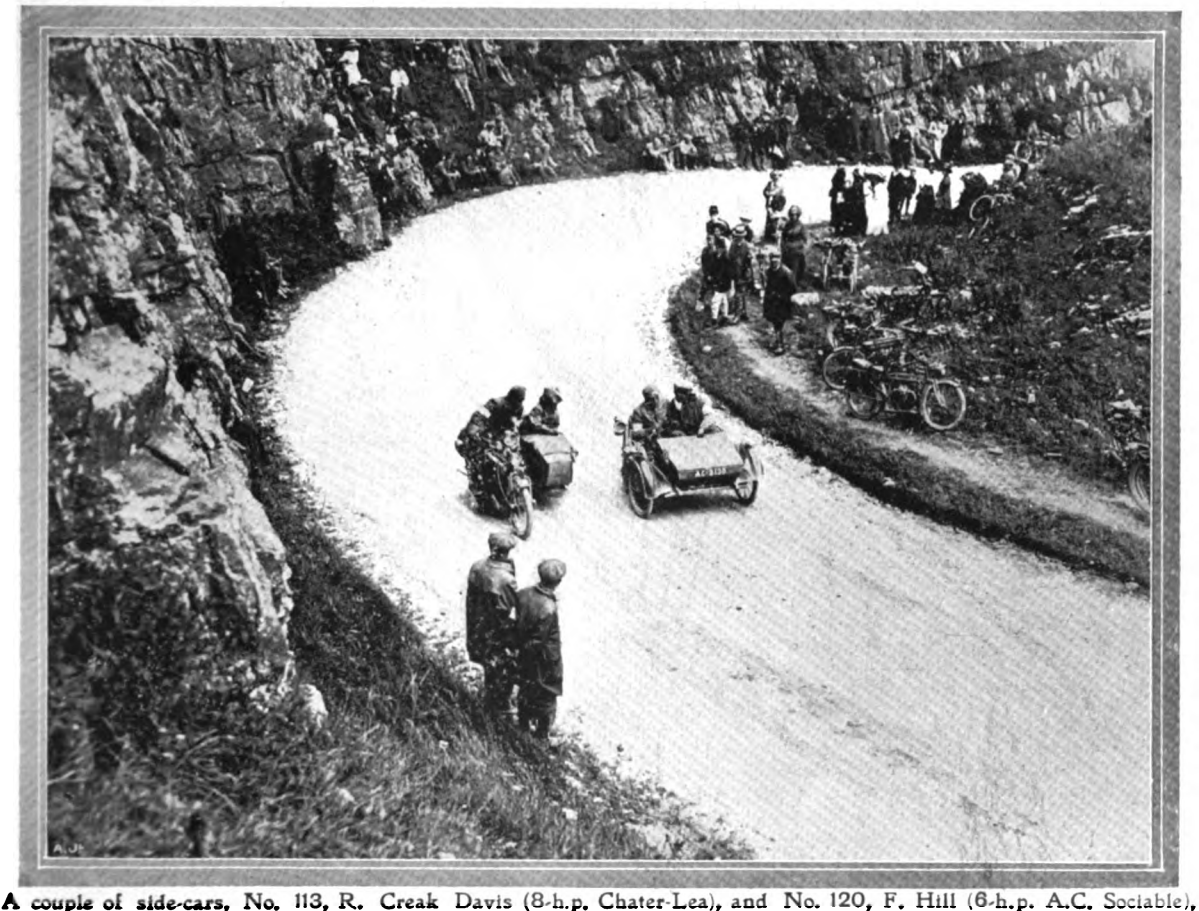
The Swiss Automobile Club Touring Competition through the Alps.—The bronze trophy by Moullet offered to the winner.

Leicester A.C. Hill-Climb.

THE annual hill-climb of the Leicester A.C. is to be held at Beacon Hill, Woodhouse Eaves, near Loughborough, on Saturday next, August 31st, and it will be open to the members of the Leicester, Notts, Derby and N. Stafford, Mid-Staffs, Lincoln, Northants, Midland, Coventry and Wolverhampton clubs. There will be five events: (*a*) for cars up to 20-h.p.; (*b*) cars of any h.p.; (*c*) cars with body and tyres costing not more than 200 guineas; (*d*) cars of the old brigade, *i.e.*, those delivered prior to the Olympia Show, 1907; for every year prior to 1907 a bonus of 5 per cent. will be given. There will also be an inter-club competition for the Du Pré Cup.

R.A.C. Tests with Private Cars.

AT a recent meeting of the Technical Committee of the R.A.C., Mr. H. E. Wimperis explained the results obtained in the B.H.P. tests with a variety of privately owned cars at Brooklands on July 19th. He also promised to write a report, which should make interesting reading.



A couple of side-cars, No. 113, R. Creak Davis (8-h.p. Chater-Lea), and No. 120, F. Hill (6-h.p. A.C. Sociable), negotiating a corner in the Cheddar Gorge during the Six Days' Auto-Cycle Trial, on the third day.

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Tests of Carburettors.

A PRIZE of £500 has been placed at the disposal of the R.A.C. by Mr. G. K. Chamberlin, founder of the A.C. of America, to be awarded to the best carburettor in tests to be carried out by the Technical Committee of the R.A.C. A sub-committee, composed of Dr. Dugald Clerk, F.R.S., Mr. T. B. Browne, Mr. A. Duckham, F.C.S., Maj. A. E. Stevenson, R.E., Dr. W. Watson, F.R.S., and Mr. H. E. Wimperis, has been appointed to draw up the regulations.

The A.C.F. Grand Prix Race.

THE full regulations governing the Grand Prix Race have now been issued by the Automobile Club of France, and the essential features are the same as given in these columns some time ago. The rules specify that the cars must have the two seats for the driver and mechanician placed side by side with a cylindrical tank, one metre long, placed across the frame behind them, and spare tyres or wheels must be mounted behind without being covered in in any way. The tanks and unions will be of a special type supplied by the A.C.F., and during the race will be sealed, as also will be the carburettor. The diameter of the cylinder will be determined by the length of the course, which has yet to be settled, and the whole of the petrol at the rate of 20 litres per 100 kiloms. must be taken on board before the start. A fine of £400 is fixed for any attempt at fraud. Replenishments of oil or tyres will be permitted, but only at the pits opposite the grand stands, but in the case of an accident to the radiator, water may be taken on at any point provided it is done in the presence of an official. Entries must be made by October 31st, and the fee has been fixed at 4,000 francs (£160). No manufacturer may enter more than six cars, and to ensure the race being held there must be at least forty entries.

Speed Judging at Sheffield.

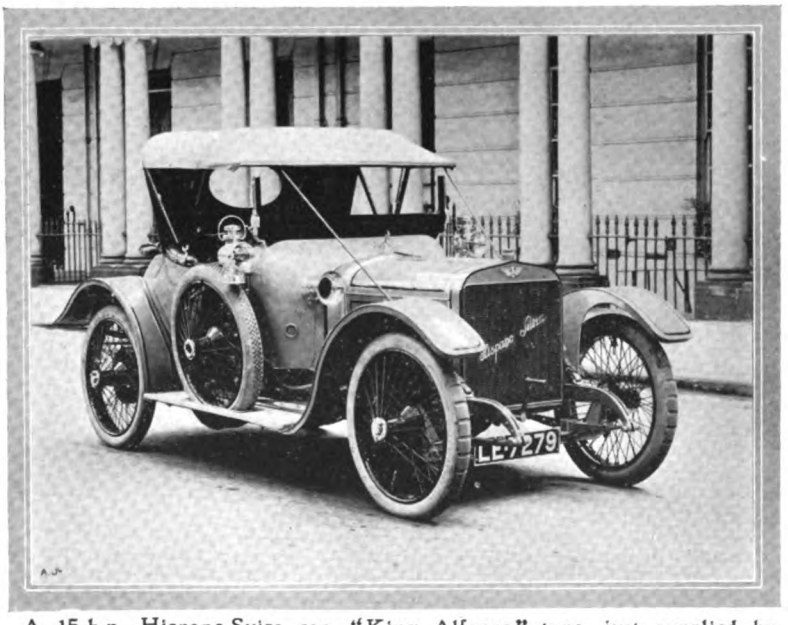
OVER a course of about ten miles, starting from Castleton, Derbyshire, the Sheffield A.C. held a speed-judging competition on Saturday last. All the ten competitors were not far out in their estimate, Mr. T. Chatterton, on a 14–16-h.p. Belsize, who was first, only being ·14 m.p.h. out in his estimate of 18¼ m.p.h.; Mr. A. Worrall, on a 12–15-h.p. Hillman-Coatalen, was second; and Mr. H. Beesley, on a 25-h.p. Talbot; and G. A. Flather, on a 15-h.p. Talbot, tied for the third place.

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MOTOR BOATING.

An American Motor Boat Trophy.

IN connection with the races for the British International Trophy, which are to be held at Huntington, Long Island, N.Y., shortly, Mr. Otto Heins, President of the Bosch Magneto Co., New York, has presented to the Motor Boat Club of America a trophy to be known as the Mile Record International Trophy, and which will be competed for annually. The competition will be open to all boats 40 ft. and under in length. The trials will be held on September 2nd and 3rd, and it is hoped that the British and American boats competing for the British International Trophy will take part. Each year the winner will be presented by the donor with a silver replica as a permanent souvenir.



A 15-h.p. Hispano-Suiza car, "King Alfonso" type, just supplied by Messrs. Jarrott, Ltd., to Mr. G. V. Deakin. The car is capable of a speed of well over 70 m.p.h. on the track, and it is of a very striking appearance by reason of its finish in post office red and pigskin upholstery. Its title, "The Red Devil," is emphasised by the little mascot seen on the scuttle-dash.

Motor Boats at Littlehampton.

BAD weather considerably interfered with the two days' joint regatta of the British and Littlehampton Motor Boat Clubs last week at Littlehampton. On the 14th the race for the B.M.B.C. 21-ft. class was a walk-over for Mr. J. H. Bell's "Fascination," while the same owner's "Flyer" won in a similar fashion the race for boats exceeding nine knots. The handicap for cabin cruisers was won by Mr. R. Pawle's "Sarawak," with Mr. H. Tate's "Mimic" second. There were two other races, one a handicap for boats under nine knots, which was won by Mr. Maurice Lindfield's "Firefly," with Mr. H. Holmden's "Doreena" second, while the handicap sweepstake for all comers was won by Mr. C. T. Holland's "Dolphin," with Mr. McClean's "Allegro" second. On the following day the only event on the open water was the cabin cruiser's race, which was won by Mr. H. A. Butt's "Merrythought," with the "Sarawak" second. The 21-ft. class race and the handicap for boats under nine knots were held over the Littlehampton's Club river course. The former race was won by "Fascination," the other starter, "Swastika," having trouble with the river weeds. In the latter race there were seven starters, and Mr. G. Atkin's "Humming Bird" had an easy win, with Mr. Lionel Taylor's "Evelyn" second.

R.M.Y.C. Racing at Netley.

GOOD entries had been received by the Royal Motor Yacht Club for the four motor boat events set down for decision last Saturday, but the wretched weather contrived to spoil them, and several of the entrants found

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it impossible to get over from Cowes. The Restricted Class Race fell through as neither Mr. T. Thornycroft's new boat, "Gyranda," nor Mr. J. A. Bird's "Rip III" could get over; and in the second race, the handicap for boats not exceeding 15 knots, there were three starters. The winner was Mr. H. W. Hutchinson's "Dranoel." Over a course of 12¾ nautical miles Mr. Douglas Hall's "White Spray," Mrs. E. Thornton's "Columbine," and Lord Montagu's "Carina" ran off a match, in which "White Spray" proved the victor. The last event was a sweepstake for all comers, but a downpour of rain at the start reduced it to a match between "White Spray" and "Dranoel," in which the former proved the victor by 17 secs. over a course of 2·1 nautical miles.



A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Irish Direction Signs.—As a result of negotiations between the Association and the County Antrim authorities, the latter have agreed to spend a certain sum in providing and erecting direction signs on the country roads. The signs will be supplied by the Association. The sign-posting proposals put forward by the Association have been accepted by eleven Irish counties, and the complete schedules of signs required for the counties Fermanagh, Carlow, and Sligo account for over 250 signs. Twenty-one counties are at present considering the Association's proposals for sign-posting their roads, and it is expected that their assents will follow in due course.

Special Road Notice.—The Epping-Stortford-Cambridge Road (between Potter Street and Harlow) is obstructed for a considerable distance owing to sewerage work being in progress, and there is only room for one vehicle to pass at a time. The Association learns that this obstruction is likely to remain for some weeks to come.

Level Railway Crossings.—A very large number of complaints have been received from members concerning level-crossings. The complaints refer to the manipulation of the gates, bad and uneven crossings, unduly high rails, also inadequate illumination of warning lamps. Among complaints now being dealt with are the following: The gates at the Bourne End and Coke End crossings are simultaneously closed for long periods, blocking the main roads to Cookham, Maidenhead, Woburn, Beaconsfield, Taplow, &c. The crossing at Chilton village is reported to be in a bad state of repair, and very dangerous to motor cyclists travelling at night; also the lock is said to be four inches higher than the road. The level-crossing at Cosham is to be repaired as the result of action taken by the Association, and several other level-crossings are undergoing improvement and repair of road surfaces, in consequence of representations put forward by the Association.

NEW COMPANIES REGISTERED.

Private Companies.

Despatch Motor Co., Ltd., 13, Finsbury Circus, E.C.—Capital £2,000, in £1 shares (1,000 "A" and 1,000 "B"). Under agreement with the Slogger Automatic Feeder Co., Ltd., and the Despatch Carrier Co., Ltd. First directors, J. A. Tinling, H. J. Buckland, J. H. Rowse, and C. A. Stern.

Sebastian Diesel Motor Boat Co., Ltd.—Capital £80,000, in £1 shares.



PUBLICATIONS RECEIVED.

Catalogues.

Pirelli Motor Tyres. Pirelli, Ltd., 144, Queen Victoria Street, E.C.

Motor Specialities, 1912. J. A. Ryley, Martineau Street, Birmingham.

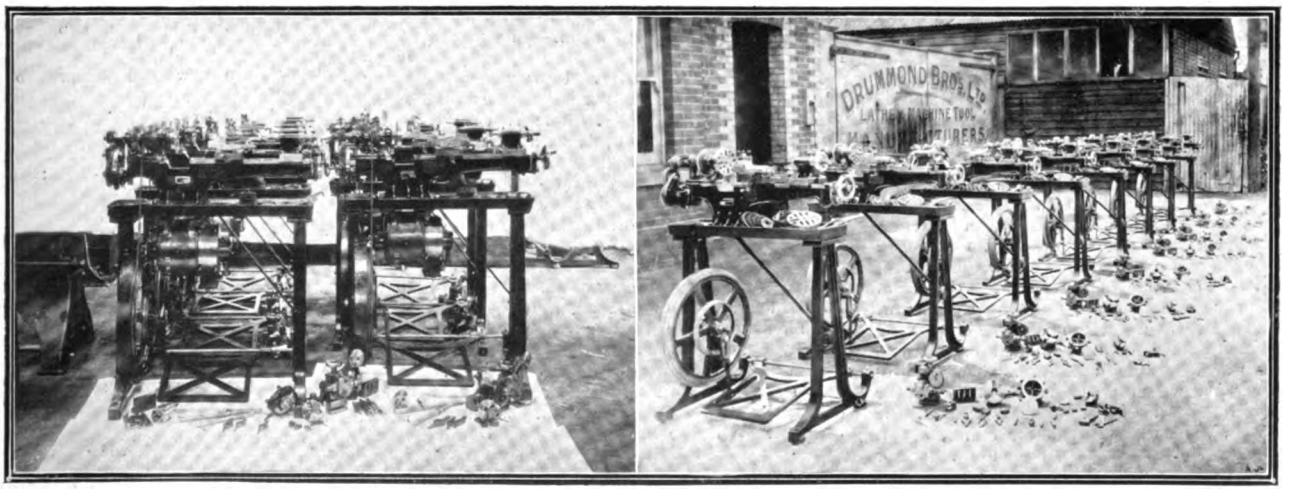


ROUNDABOUT NOTES.

IN a letter recently received by Messrs. Sir W. G. Armstrong-Whitworth and Co., Ltd., Colonel E. W. Cradock, The Lawn, Ryde, after referring to his previous 18-22 Armstrong-Whitworth car, says: "The 15-20 h.p. limousine is beyond all praise. It is so silent and travels so smoothly, and most ordinary hills and fairly steep hills are taken with ease on top speed. One can feel for oneself its power when running. I believe the engines and body are as near perfection as any that have yet been made. I am delighted with it, and look forward to taking a long tour in it this autumn in the English Lake district and Scotland, for I know I have a car equal to taking the worst hills I shall encounter."

FURTHER evidence of the merit of the Argyll elliptical single sleeve-valve engine is furnished by the fact that negotiations are already well advanced for the exploitation of the new engine in all parts of the world. Manufacture has already commenced in France, Switzerland and Canada. It is anticipated that in consequence of the efficiency and simplicity of the engine, the most prominent automobile manufacturers of the world will, before long, make the engine under license from Argylls, Ltd., who control the invention everywhere.

FROM Geneva the Wolseley Tool and Motor Car Co. recently received the following from the owner of a 30-h p. Wolseley car:—"The car has done well, these passes in their order with five up and all baggage: Col. Du Lautaret, Mont Genevre, Mt. Cenis, The Arlberg, Falzarego, Pordoi, San Lugano, Mendel, Tonale, Aprica, Simplon. In addition we got up the Stelvio as far as Franzenhohe, beyond which it was blocked with snow, and as the pass would not be open until end of June had to turn back. Curiously enough on the Mendel we struck the cars doing the reliability test run out of Vienna. After lunch we entered the route for a big spell, and whilst none came near us we could have shown many our hind wheels. These were all going light and one we passed broken down. The troops kept the route clear for all the cars, and we had a glorious run in consequence. Precious few cars would do as mine did and come through without a mechanical trouble."



Drummond lathes, manufactured by Drummond Bros., Ltd., of Rides Hill, Guildford, are probably known in the remotest corner of the world both in official and private workshops. Our photograph above shows a little repeat order from a Government Department of a set of eight of the firm's remarkable 3½-in. centre lathes, some of which, it will be noticed, are fitted with electric motor drive.

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MR. R. W. A. BREWER, chairman of Efficiency, Ltd., of 199, Piccadilly, W., has returned from his visit to the States. He has brought back agencies for a special pressed-steel petrol tank, and also for an electric motor horn and a tyre pressure-gauge, among other things.

FROM Messrs. Pirelli, Ltd., who are now located at 144, Queen Victoria Street, London, E.C., we learn that in the Belgian Grand Prix the first Hermes car, driven by Sauveniere, and the second Hermes, driven by Simon, were fitted with Pirelli tyres, and not as has been otherwise stated extensively in the Press.

THE Riley car agency for London is controlled by Mr. O. L. Ellis, whose showrooms are at 51-53, Goldhawk Road, Shepherd's Bush, where the latest Riley chassis, fitted with 90° V-type engine and well designed and nicely finished London-built bodies, can be inspected.

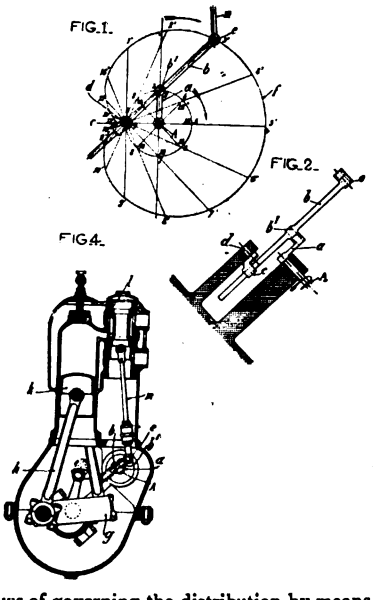
IT has been found necessary this year to again increase the Sunbeam works at Wolverhampton to meet the ever-increasing demand for the Sunbeam cars. A new body shop and a paint shop are being erected, and naturally they will be equipped with the latest appliances.

BRITISH PATENTS.

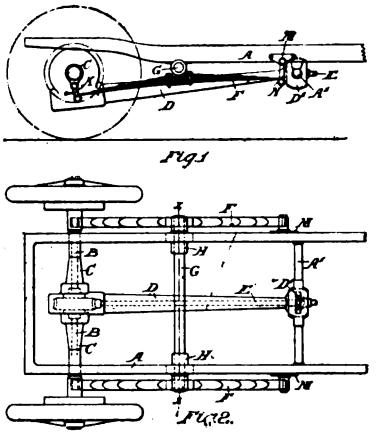
Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification

10,485. May 2nd, 1912. Date claimed under International Convention, May 6th, 1911. Improved Valve-Gear for Four-Cycle Explosion Motors. The Société Anonyme des Automobile et Cycles Peugeot, 71, Avenue de la Grande Armee, Paris. This invention relates to an improved valve-gear for four-cycle explosion motors, the distribution being effected by a device having an alternating rectilinear or rotary movement. The mechanism is characterised by the fact that the point of connection of the crank-rod and the distributor describes a curve which



allows of governing the distribution by means of a shaft rotating at the same speed as the motor-shaft. Fig. 1 is a diagram showing the curve described by the point of attachment of the rod governing the valve. Fig. 2 is a plan of the mechanism shown in Fig. 1. Fig. 4 is a section illustrating the invention, comprising a piston-valve having alternating rectilinear movement. In Figs. 1 and 2, *a* designates a crank which turns with the shaft, A, at the speed of the motor. A lever, *b*, is articulated at b^1 on the pin of crank, *a*, and slides in a guide, *c*, capable of rotating around a fixed point, *d*, situated on the circle described by the crank-pin. The end of lever, *b*, which is articulated at *e* to the governing-rod of the valve described, the curve, *f*, for two turns of the crank, *a*, that is to say for two turns of the motor. If, for example, the crank-pin, b^1, is at the point, 1, the end, *e*, of the lever, *b*, is at 1^1. For one turn of the crank, *a*, the point, *e*, comes to 9^1. The displacement of 1 to 9 of the crank are represented by equal angles, the movement being uniform. Those of the lever, *b*, increase progressively up to 5^1, then equally diminish up to 9^1. During the second turn of the crank, *a*, the lever, *b*, continues to describe smaller and smaller angles up to 13^1, then these angles increase until the point, *e*, has returned to 1^1, when the point, b^1, of the crank-pin has returned to 1 at the end of the second phase. In effect, the two phases during which the vertical displacements of the distributor-member are the weakest can be utilised for compression and explosion. The crank, *g*, the connecting-rod, *h*, and the piston, *k*, have no novel



features. The piston-valve is actuated by the rod, *m*, articulated by its lower end to the lever, *b*. The crank, *a*, is driven at the speed of the motor, either by gear-wheels, or by means of chains, or by a rod.—July 31st, 1912.

16,879. July 24th, 1911. Improvements in Means of Spring-supporting Bodies of Vehicles from their Axles. The Wolseley Tool and Motor Car Co., Ltd., and A. A. Remington, Adderley Park, Birmingham.—This invention consists in spring-supporting the weight of a vehicle body from an axle in a manner which ensures that, while the entire arrangement of springs which are used in lessening shocks in connection with the axle are effective under vertical movements of the body in relation to the axle, a quicker periodicity will be obtained when rolling than when vertical movements of the body are taking place in relation to the axle. Fig. 1 is a side elevation of the rear portion of a motor car frame. Fig. 2 is a plan view of same. A is the motor car frame, B the live-axle, C the tubular-casing which contains the live-axle and the differential-gear, D the forwardly-projecting member of the casing, C, which acts as the torque and thrust-member, and is connected at its forward end, by a universal-joint, D^1, with a cross-member, A^1, of the frame, and itself encloses the propeller-shaft, E. F F are the main side-springs, which are fixed at about their middles to the ends, respectively, of a transverse shaft, G, which is mounted to be capable of turning within bearings, H, which are fixed to the frame, A. Each side-spring, F, is connected at its rear end with the corresponding end of the tubular-casing, C, through the medium of a link, K, and is connected at its forward end with a bracket, M, of the frame, A, through the medium of a link, N. When the axle, B, is exposed simply to shocks which cause vertical oscillation at both its ends, the shaft, G, will turn somewhat under the movement of the springs due to such shocks, and allow the full elastic capacity of the springs, F, to be utilised; whereas, if the car tends to roll over to one side, the rear-end of the spring at such side will tend to yield upwards in relation to the corresponding end of the shaft, G, with the result that one spring will tend to turn the shaft in one direction, and the other to prevent it turning in such direction, and consequently the elasticity of the portions of the springs, F, which are forwards of the shaft, G, will not be utilised in any substantial degree, the elasticity of the springs being confined to substantially their rear portions—that is to say, those portions of the springs only which, together with the shaft, G, offer resistance against the tendency of the car to roll.—July 31st, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published August 22nd, 1912.

17,117. P. G. TACCHI. I.C. engines.
17,186. A. FERGUSSON, H. SPURRIER, AND LEYLAND MOTORS, LTD. Transmission-gear.
17,193. J. S. WHITE. Carburettors.
17,203. C. BROWN, AND BROWN AND BARLOW, LTD. Carburettors.
18,929. M. BUCH. Detachable wheels.
21,498. H. J. HARDING. Frames.
25,505. J. WELLER. Brakes.
27,942. J. SHAW. I.C. engines.
28,454. W. HOLEKA. Automatically-adjustable headlights.

Applied for in 1912.

Published August 15th, 1912.

1,288. J. SCHUSTER. Magnet elec. speed indicators.
7,797. S. MATTHEWS. Heaters for cars.
8,580. O. E. JORGENSEN. Starting I.C. motors of Diesel type.
8,753. E. KIRKUP. Change-speed gear.
9,131. W. H. MOORE AND AMBROSE SHARDLOW AND CO. Fuel injector.
10,485. SOC. ANON. DES AUTOS. PEUGEOT. Valve gear.
14,021. E. GOBBI. Carburettors.

Published August 22nd, 1912.

1,849. G. A. BISHOP. Motor cars.
1,853. G. L. A. PERRET. Speed-changing, &c. gear.
4,415. F. MORRIS. Resilient wheels.
8,766. W. MAYBACH. Four-stroke cycle, oscillating cylinder, I.C. engine.
10,978. C. W., F. H., AND E. A. BLUEMEL AND W. STARLEY. Steering wheels.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 608. (No. 35, Vol. XVII.) | AUGUST 31, 1912. | [Weekly, Price 3d Post Free, 3½d.



THROUGH NEW ZEALAND BY CAR.—A scene on the Lindus Pass on the Grand Motor Tour between Mount Cook and Queenstown.

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The AUTO (YELLOW COVER). MOTOR JOURNAL.

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.
Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.
All letters should be addressed to the Editor.

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Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.
Small corrections can be accepted up to 6 p.m. on Tuesday.
All communications must be addressed to the Manager.

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Passing Events

The Use and Abuse of the Motor Horn.

So far from there being any cessation of the outcry against the excessive and inconsiderate use of the motor horn, the agitation seems to be gathering fresh strength every day. In a recent issue of *The Times* there was once again published a long letter from Sir Henry Morris, wherein he complains most bitterly of the nuisance caused by the inconsiderate behaviour of motorists, not only with reference to the undue sounding of the horn but by reason of what he apparently thinks is the uniformly reckless driving of every unfortunate person who handles the steering-wheel of a car. We cannot help regarding Sir Henry's letter as one of those effusions which are all too common when prejudice rules unreasoned, and which would do far more good to the cause they advocate if only a little more moderation were exercised in the charges levelled at the object of complaint. He is too sweeping to be quite convincing, and, furthermore, makes use of that most objectionable form of argument intended to convict the opposition out of its own mouth—the use of quotation without context. Having thus relieved ourselves of the criticism which automatically comes to mind after a perusal of Sir Henry's letter, we will do him the justice to admit that there is much of reason in his complaint, so far as regards the too frequent use of the motor horn in the London streets.

Our contemporary, the *Evening News*, which certainly cannot be accused of being anti-motor in its tendency, has an excellent leading article on the subject of Sir Henry Morris's letter. Without going so far as to say that we agree in their entirety with the views of our evening contemporary, we cannot avoid the conclusion that there is much sound wisdom in its words. Perhaps, under the circumstances, we may be permitted to quote from the article in question — why, we will explain later on :—

"Motors have come to stay. That is a truism which might put the users and makers of motor horns into a conciliatory humour. But a great many other things have likewise come to stay: for instance, chloroform, and steam-rollers, which, used indiscriminately, would make life unlivable for the greater part of the community. What is wanted is a spirit of reasonableness to devise checks to those excesses of which Sir Henry speaks. Motorists form a powerful body; they can impose their corporate will upon individual members in a way that even the authorities cannot—at least, in the earlier stages. Motor horns could surely be standardised by the motor unions, so as to banish the more discordant, while a couple of salutary rules might be devised to deal with the other evils.

"Thus, members would be invited to forbid their chauffeurs from howling at short range or in the middle of the night. Motorists, as the result of incorporation, are uniformly, even touchingly, polite to one another in difficulties. Why cannot they be equally polite to the general public? Their own interests are concerned in it that they should be so. The public is very patient, but it moves at last; and when it does move it generally moves to some purpose. Already one local authority has petitioned the London County Council in the matter, and at least one chauffeur has been fined for midnight disturbance. The spirit of protest will take shape before very long in by-laws of a much more rigorous nature than motorists have experienced hitherto. Then they will complain that they are harassed and worried, and an industry is being throttled. It will be entirely their own fault if any such state of things comes to pass."

• • •

The Public Point of View.

It is quite possible that we, as motorists, may think that too much is being made of this particular grievance. That may be so, but having admitted that a grievance does in fact exist—and of that there is, unfortunately, no doubt at all—we have to remember that, whatever our own views may be, those of our contemporary march with the public point of view and it is that which counts. The question is, what can be done from within? We do not agree that the motor organisations can do very much in the matter, because, as we have more than once insisted, it is not the private car owner or his driver who is the

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arch-sinner and it is these only who could be reached by the authority of the R.A.C. or the A.A. Remove the horn from the taxi-cab and London might almost be a city of the dead so far as motor noise is concerned. If any who read this deliberate expression of our opinion should be inclined to doubt the accuracy of it, let them observe for themselves and be convinced. Therefore, it would almost appear as if the remedy lay in the hands of the taxi-cab companies, who certainly must have some amount of control over their drivers. But then, is the taxi driver so much to blame as would appear on the surface? Certainly, as we have said, he hoots his way through the traffic as though possessed of a veritable mania for noise, but on the authority of Sir Henry Morris himself, we learn that the driver is instructed by Scotland Yard that he should sound his hooter half-a-dozen times at each corner! If that be true—and without corroboration we simply cannot believe it—the fault must be laid at the door of the police authorities. If that is so, then we suggest that the official responsible for these directions should be told by his superiors that he should change the form of his advice and tell the drivers who come before him for licences that the hooter should never be used except in case of real necessity. Then the companies may be able to help in the suppression of the nuisance. In the meantime it would perhaps help if the R.A.C. would take a census of hooter sounds at some of the busy traffic points in London, with a view to setting at rest the question of just which particular form of motor traffic is mostly at fault and, further, just how much real justification there is for the complaints. We imagine the result would be somewhat surprising.

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Hideous Hoardings.

We are not at all sorry to see that the progressive Kent County Council has decided to take advantage of the powers conferred upon local authorities by the Advertisements Regulation Act, 1907, and to adopt a bye-law prohibiting the disfigurement of the countryside by the erection of unsightly hoardings. The matter is one to which reference is constantly being made, and, so far as we know, no one, including the advertisers themselves, has ever had a good word to say for the roadside advertisement. These eyesores have increased and multiplied out of all reason since the roads came into real use as a result of the advent of the motor car. For our own part, we do not assess the value of such advertisements very highly, for while they may attract one person they disgust half-a-dozen by their obtrusion upon the most beautiful views from one end of the country to the other.

Particularly now, when the increasing growth of motor traffic is bringing the countryside to the doors, as it were, of literally everyone, is it desirable on all counts that some drastic regulations of these hideous disfigurements should be taken in hand. Something has been done, but not much. The three lake counties, and a few others, including Somerset, Hants, Gloucester, East Sussex, and Surrey, and now Kent, have taken powers under the Act which has been referred to, and doubtless more will follow, but the regulating process is likely to be slow and painful. Although the Act is certainly helpful, it has, like most other enactments, many weaknesses, which go far to render nugatory the best intentions of its framers. For instance, there is the clause which exempts from the operation of county council bye-laws towns with a population of over 10,000. Thus it can easily happen that a county council may pass a regulating bye-law which will be of practically no effect by reason of the large number of such towns within its area, each of which may take the narrowest view of what it is pleased to call local interests.

To our way of thinking, the abuse of the roadside advertisement requires tackling in a much more direct manner than the Advertisements Regulation Act provides. The clause to which reference has been made is, as we have indicated, a serious weakness, while the five years' grace accorded to hoardings already in existence is another serious blot on the efficiency of the law as it stands. In a word, the act is too permissive, and too little mandatory.

In France the matter is being handled in a way that we commend to our own authorities, by simply taxing these disfiguring signs out of existence. We are blessed —or inflicted, as the point of view happens to be—with a Chancellor of the Exchequer whose hobby is popularly supposed to be the robbing of hen-roosts. Well, here is one all ready for robbing, and few people would complain if *all* the eggs were cleared out of the nest.

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"The Horse as a Street Nuisance."

Ten or twelve years ago when we ventured to apply this very description to "the friend of man," the most charitable thing that was said was that there must be a touch of madness somewhere. And, when we speculated upon the time when there would be no more horses in use to make our highways insanitary and dangerous, we were told that the fate of the false prophet was to be stoned to death, and that we should take care lest that or a worse fate should befall. That was in the last decade of the nineteenth century. Now, in the second decade of the twentieth, we open our morning paper and fall straight upon the line which heads this paragraph. And the most wonderful thing about it is that there does not seem to be any question at all in the editorial mind as to whether or not the conclusion is a justifiable one—it is simply accepted as a plain statement of fact. The line we are discussing is taken from the *Daily Mirror* recently, and heads an article which is partly based upon a letter from a correspondent and partly upon an interview with Lord Montagu of Beaulieu. "The horse is a danger and a nuisance in the streets of a city. We hear a lot about a motor car street tax, but it is the horse, not the motor car, which should be taxed. It would be as easy to tax horses as it is to tax dogs." Thus the *Mirror* correspondent, and with his sentiments we entirely agree.

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Lord Montagu agrees with the strictures upon horse traffic, but does not think it would be politically possible to tax horses. And why not? We are taxed on our incomes, on our cars, on our servants—on everything, almost, but the air we breathe—and as each fresh tax comes along we curse Parliament and the Chancellor of the Exchequer, but it is not long before we settle down to the idea and pay like lambs. A tax on horses would not be popular, but does anyone but the rabid teetotaller like the tax on beer? Is the insurance tax universally popular? And yet both are politically possible, as we see from practical demonstration. Unfortunately, among professional politicians there is always this lurking fear that a measure, even one conceived in the public interest, may cost valuable votes—may even convert the "ins" into the "outs," and far too much of our legislation is based almost entirely on the vote-retaining basis. *Pace* Lord Montagu, we think that a horse tax would be quite possible to levy and collect—politically and practically—and it would certainly be an excellent tax to impose. We need not go back over all the threadbare arguments against the taxation of a single form of locomotion. It is enough to let it rest upon the fundamental truism that where taxation should discriminate at all, it should be against the obsolete and inefficient, and where encouragement is given it should be to the new and progressive.

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Fines for Refractory Pedestrians.

The police of Vienna, in view of the numerous motor car accidents which have taken place recently in that city, have issued a new set of regulations for pedestrian traffic, the police view being that the foot-passenger is chiefly to blame for these accidents. From now on the pedestrian in Vienna will be required to keep to the footpath, and if he wishes to cross the road he must do so in a straight line, and take the shortest path. Persons found walking lengthwise along the carriage way will be reprimanded by the police, and if they refuse to obey the new regulations will be subjected to fines ranging from a mere eighteenpence to the quite substantial sum of eight pounds.

Vienna has given the lead, but there is no question at all but that it must come to this in all the large cities of the civilised world. It is no use mincing matters—the Vienna police are perfectly right in their conclusion that the bulk of street accidents are due directly to the carelessness or reckless conduct of pedestrians and, as modern traffic changes and develops, it will become increasingly necessary to protect the foot-passenger against himself. There is the further necessity also for protecting other traffic against the consequences of pedestrian recklessness. We are quite aware that all this sounds very much like revolutionary doctrine, and so it is, up to a point. But in justification of theories which sound heretical, we must once more point out that traffic conditions have become revolutionised and that, consequently, our methods of regulating it must undergo complete alteration. The conservatives will say that it is the vehicular traffic and particularly that which is mechanically propelled, which should be regulated and restricted, but it must not be lost to sight that there is a limit beyond which restriction defeats itself and, having got to that point, we have to look farther afield for our remedies. We should be the last to contend that there is no room for improvement in our system of vehicular traffic regulation—indeed, we have consistently argued to the contrary—but the point of the matter is, as we have put it on several occasions when arguing this traffic question, that to be effective, a scheme for the regulation of traffic must be thoroughly comprehensive and must include *all* traffic.

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A Plea for Consideration

In a letter addressed to the A.A and M.U., the Rev. W. Manning, Rector of Chipping Barnet, makes a powerful plea for consideration from the Sunday motorist. He points out that often during the hours of worship church congregations are disturbed by the noise of passing cars, and asks that motorists should extend a reasonable measure of consideration under such circumstances. As he, himself, says, the trouble arises mainly because the motorist is unaware of the disturbance he is causing. He makes the further very practical suggestion that some sort of signal should be devised which could be exhibited from churches during the hours of divine service implying the request that motorists should, when passing a church exhibiting that signal, do so with a minimum of noise or even at a reduced speed.

We most fully concur in the request of the A.A. that Mr. Manning's appeal should meet with a ready response from the motorist. We are quite confident that all that is necessary is that it should be made as widely known as possible for it to produce the maximum effect. No decently-minded person, no matter what his religious beliefs may be—or even if he has none at all worth speaking of—has the least desire to render himself obnoxious to others who attach more importance than he to the strict observance of the Sabbath. That being so, we have the greatest possible pleasure in passing on the request, in the full confidence that our readers will make a note of its subject matter with a view to the avoidance of offence in future. Incidentally, and before we leave the subject, it would be useful if the A.A. would devise and issue to churches making application some such signal as that suggested in Mr. Manning's letter.

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Irish Police Evidence.

It would appear that there are some imaginative officers among the Irish police. In a case at Portadown Petty Sessions the other day, a constable swore that the motor cyclist who was being prosecuted had ridden through a street crowded with children at a speed of 40 to 50 miles an hour. On the other hand, the cyclist swore there was not a soul in sight and his speed was only 8 miles an hour. Nevertheless, the policeman was believed, but as, in his evidence, he said that a lady, in a clergyman's side-car, who was present at the time, put out her tongue a foot long, we think the cyclist might have been given the benefit of the doubt instead of being fined 10*s.* and costs.

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With the Camera and the Car.

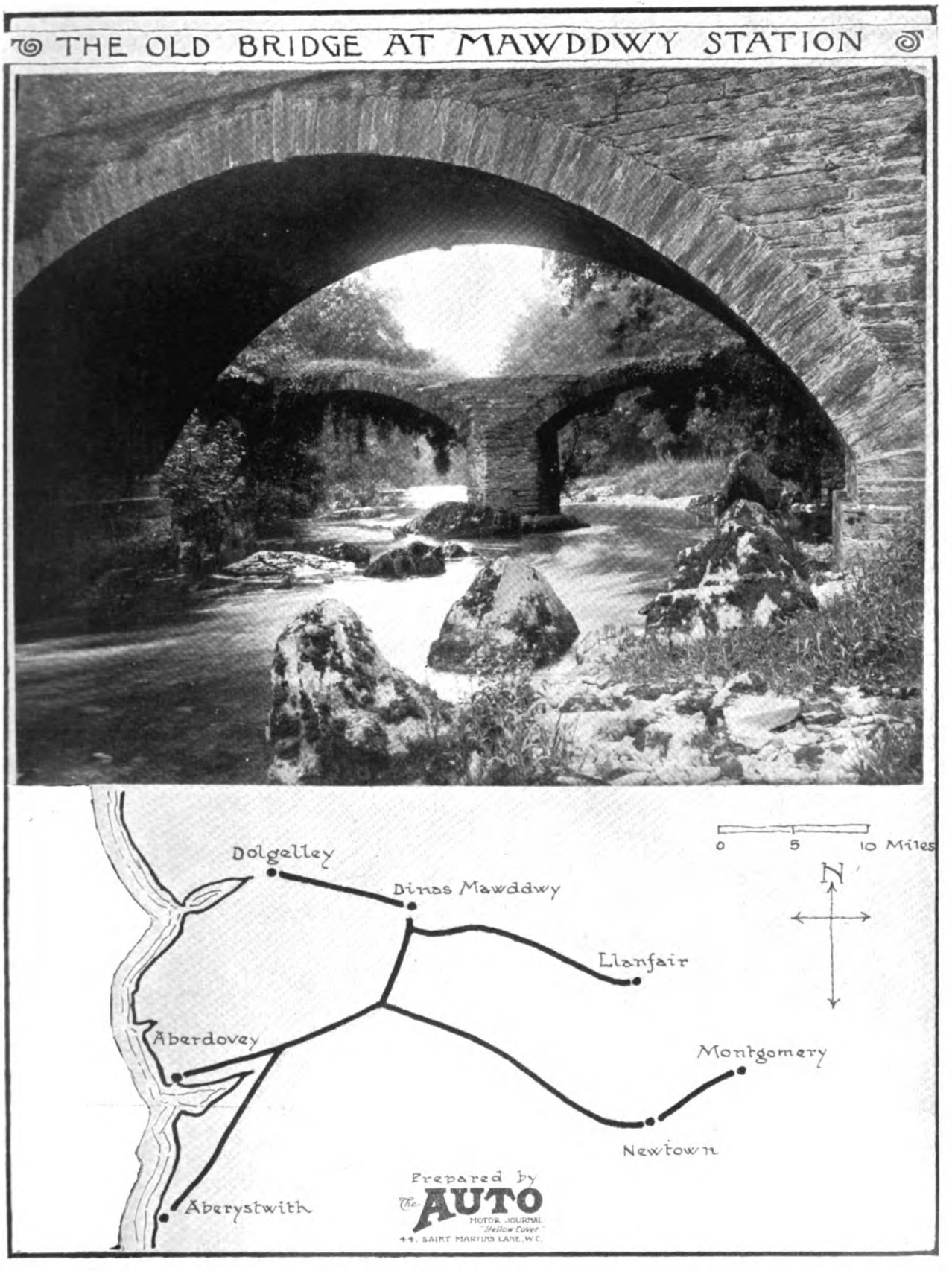


Photo by Mr. J. Foulds.

WITH A WOLSELEY CAR IN WALES.—Double bridge at **Mawddwy** Station over the River Dovey at the foot of **Dinas Mawddwy, Merioneth, Wales.** The smaller bridge is apparently an old disused pack bridge which has been superseded by the present bridge. It is now in a moss-grown, ruinous, although picturesque condition.

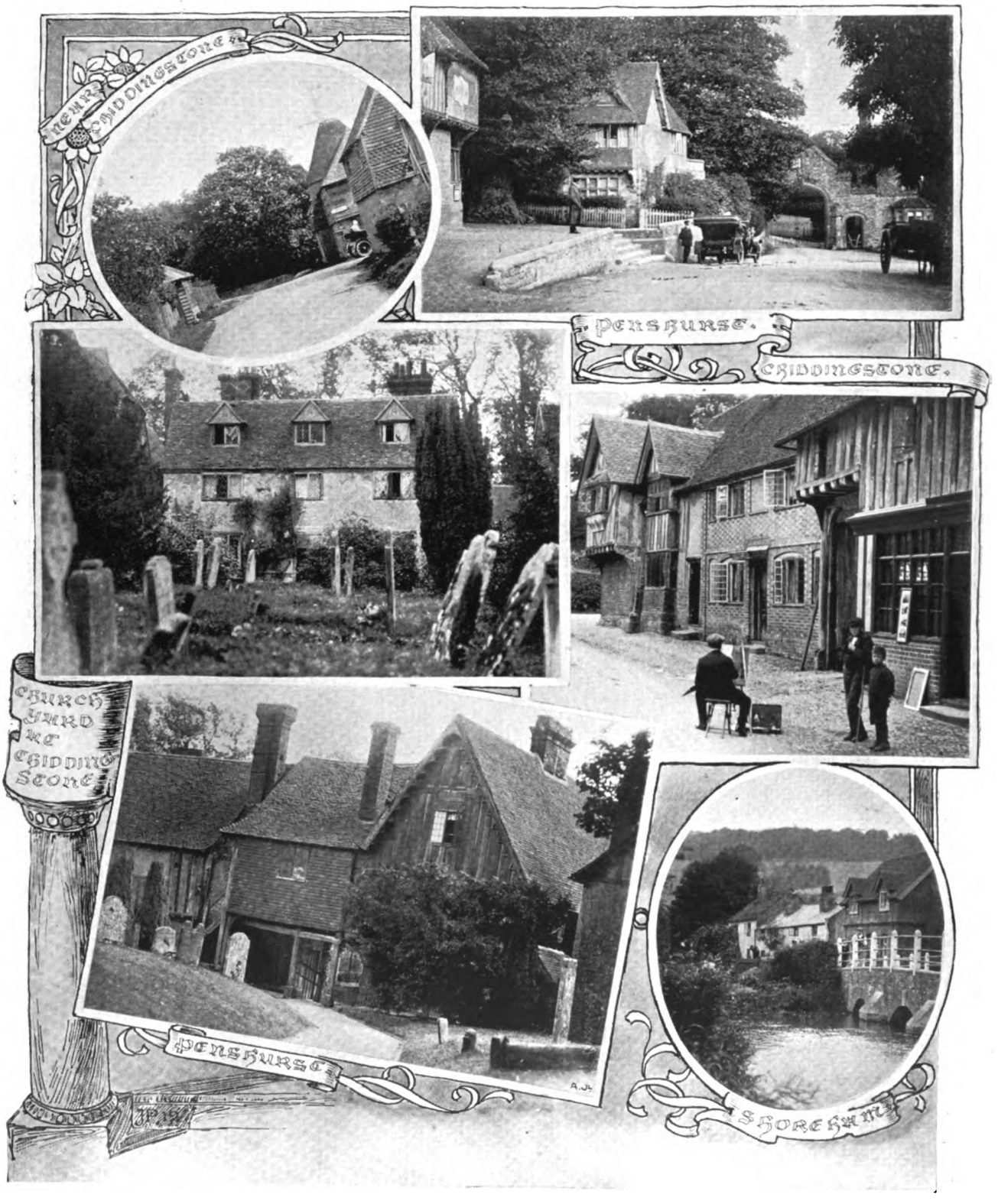
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SOME KENTISH BEAUTY SPOTS.

By "THE MAN AT THE WHEEL."

(*Concluded from page* 988.)

AT the next point, 19, another little hamlet, called Lew Cross, nestles below an outcrop of bare rocks, characteristic of the Tunbridge Wells district. Motorists should render thanks to the road engineers who



SOME KENTISH BEAUTY SPOTS.—See article by "The Man at the Wheel."

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Itinerary of Route. Distances measured from corner of High Street, George Street, Croydon.

No. on Map and Directions. (Page 987.)	Names on Sign Posts.	Growing Mileage.
1 S.A. along High Street	—	0
2 L.T. at "Red Deer" Hotel ...	Sanderstead Road	1·6
3 L.F. "Leather Bottle" Inn, F.P. under tree 70 yards past fork	Tatsfield and Westerham ...	5·2
4 Sharp L.T. opposite two cottages, at five-armed F.P.	Tatsfield and Westerham ...	8·7
5 CAUTION sharp L.T. around rubble wall, keep along wide street in Westerham, straight down short hill	—	12·5
6 R.T., lamp-post centre of road ...	Edenbridge	13·1
7 L.T.	Four Elms, Hever, Chiddingstone, Penshurst	14·1
8 S.A.	Edenbridge	14·3
9 L.T. at a cottage	Four Elms and Hever ...	15·6
10 S.A. at cross roads	Hever and Tonbridge ...	16·1
11 S.A. at cross roads	Bough, Leigh, Tonbridge ...	16·8
12 R.F.	Hever and Cowden	16·9
13 L.T. at small triangle of turf in centre of road	F.P. missing	17·5
14 L.T., very acute, opposite red letter-box	Chiddingstone and Tonbridge	18·1
15 S.A.	Leigh, Penshurst	19·1
16 R.F. "Chequers" Inn	Chiddingstone, Cowden ...	19·3
17 L.T.	Chiddingstone, Leigh ...	20·4
CHIDDINGSTONE		
18 R.T. between cart shed and hop kiln	Penshurst, Tunbridge Wells	20·9
19 L.F., cottages at LEW CROSS ...	Penshurst, Fordcombe ...	22·5
PENSHURST	—	25·7
20 B.L. falling big tree	Bidborough, Tunbridge Wells	26·4
21 L.T.	Leigh, Tonbridge	27·5
22 S.A.	Tonbridge	29·5
23 L.T. into TONBRIDGE. Keep to right of church, then along narrow High Street to top of Tonbridge town, where	—	31·5
24 R.F. at "Ship" Inn...	Shipbourne (on lamp-post) ...	32·6
25 L.T., and in 200 yards R.F. ...	Seal, Sevenoaks, Ightham and Wrotham	37·3
26 S.A.	Wrotham, Maidstone ...	38·8
IGHTHAM, down hill, 50 yards past "George and Dragon" Inn take	—	39·5
27 L.F.	Kingsdown, Ash	—
28 L.T.	Kemsing, Otford	41·0
29 R.T., then sharp L.T. in 300 yards		
30 R.F.	Otford	42·7
31 R.T.	Eynsford, Farningham ...	45·4
32 L.T. around low fence and under railway	Shoreham	46·7
33 Go dead slow across river and in 150 yards R.T., proceed along village and bear left where double-fronted cottage faces		
34 Very obtuse L.T. up hill	Halstead	47·9
35 R.F.	Chelsfield	48·5
36 Keep to *end* of lane, L.T. at black shed	F.P. missing	50·5
37 R.T. at "Bell" Inn, Chelsfield ..	—	51·0
38 L.T.	Railway station and Farnborough	—
39 Road comes out on green, which cross *straight* ahead. In 50 yards, sharp R.T. into main tarred road, edged by telegraph poles	Farnborough	52·9
40 L.T. and straight ahead, across Hayes Common	Wickham and Croydon ...	54·9
41 At end of common, down short steep hill, sharp L.T. in ¼ mile, then first R.T. between high trees		
42 L.T. at big tree in *centre* of road ...	—	58·3
43 R.T. into Shirley Road	Croydon	60·0
44 L.T. into Addiscombe Road, then S.A., until reaching tram lines, which follow to LEFT, back to starting point	Croydon	60·7
		63·0
Add distance from and to R.A.C. ...	—	20·0
		83·0

L.T. = left turn. R.T. = right turn. S.A. = straight ahead.
L.F. = left fork. R.F. = right fork. F.P. = finger post.

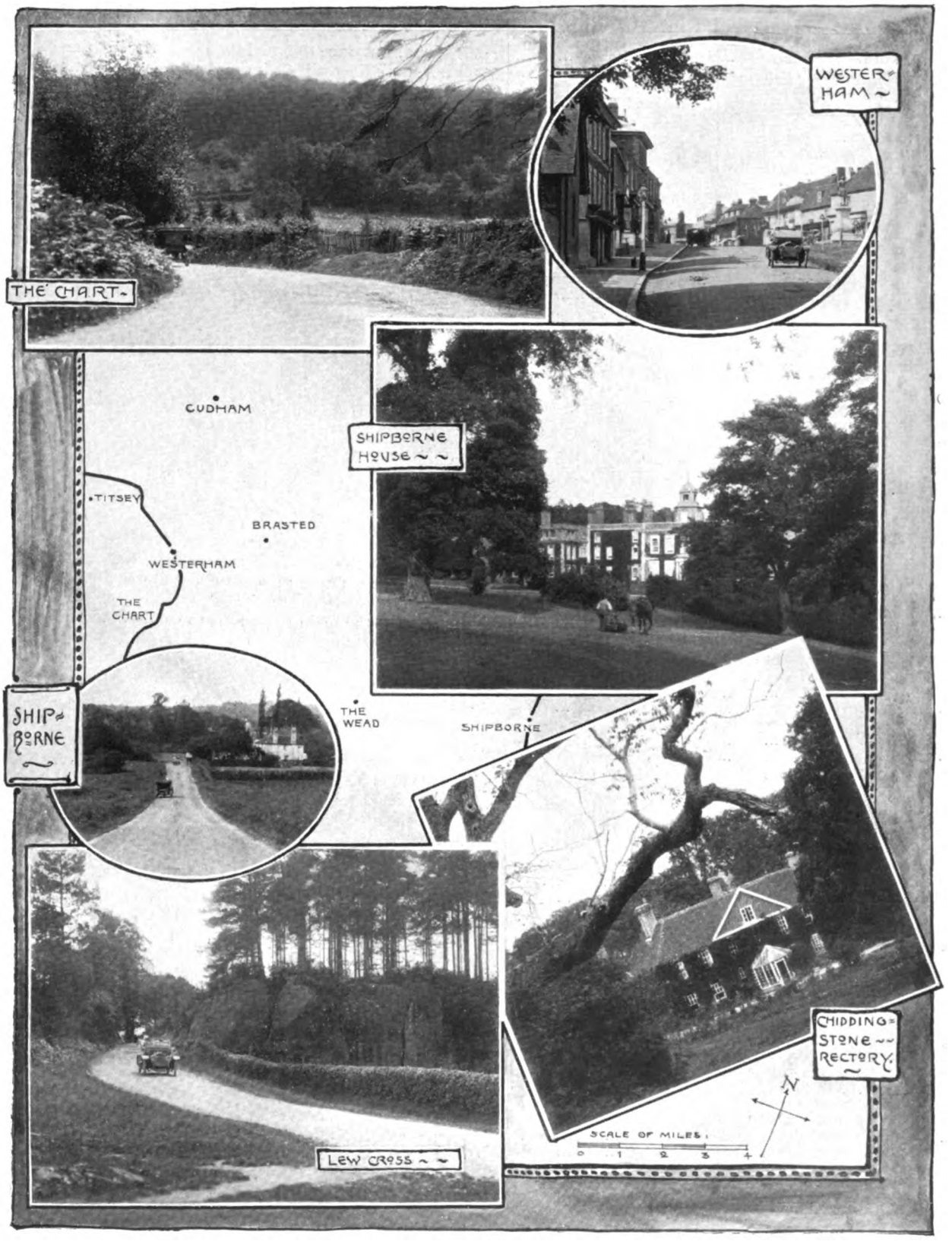
eased the gradient, bad as it is, by carrying the highway up through the rocks instead of over them. Thereafter the next three turns are all to the left to reach Penshurst. I must beg forgiveness for asking passengers to alight here, 3½ miles beyond the rocks, and if they are in a desperate hurry, ten minutes might suffice for looking round, but once tempted to come out of the car, I do not think they will desire to depart so quickly. Penshurst Place is indissolubly bound up with memories of Queen Elizabeth and Sir Philip Sidney, of whose history I must leave the local guide book to tell its own tale. The tiny space around the big tree, outside the post office, is known as Leicester Square—no connection with the London square holding the Empire and Alhambra—and by walking beneath the house at the back, crossing the small churchyard to the left, and through a swing gate, the main front of the mansion can be seen. Keep along the footpath beside a sunk wall, and keep straight ahead for about 300 yards, then turn round and realise that the architect of this building quite understood the problem of combining the work of man with the best that Nature can bestow. When returning, note the height of the clipped yew hedge at the side of the mansion, the charming vicarage garden seen through open railings close to the swing gate, and the large number of yew trees in the churchyard, all worth more than a passing glance. The gardens and baronial hall of Penshurst Place are world-famous and can be visited on certain days for a small fee. There is a hefty pull up out of Penshurst after crossing the river Eden (which enters the Medway some four miles ahead) and when the top is reached the views westward are as varied and charming as anything on the whole route. Keep note of the tabular directions accompanying this article rather than watching the sign-posts, because although both make for Tonbridge, my route avoids touching the main road until the ugly bricks and mortar of the High Street in that town are entered upon. Fortunately, there is only a little over a mile to traverse before the country opens out again and the road begins to ascend from the valley of the Medway. Between points 24 and 25 there is a fine surprise view due south, where a thoughtful landowner has cut down the usual high wooden fence and erected an open iron railing, permitting wayfarers to participate in the enjoyment. We go on climbing after this to the 500 ft. mark, passing another and perhaps better view to the south. When the summit has been reached, although it is comparatively low ground, the vistas to right hand and ahead almost compel a stop every few yards.

Crawling down and through the village of Ightham—
—the George and Dragon Inn serves a good tea—we run along a narrow lane, turn left at point 27, go cautiously round an acutely-angled right turn in half a mile, and in 300 yards, go very, very cautiously sharp to the left down an obtuse-angled slope. We are now on the ancient Pilgrim's Road that follows in and out amongst the shoulders of the hills from Canterbury to Winchester. Disdaining to drop down into Otford, three miles farther along, we leave it to the left, and find our way into Shoreham, a big village without any visible means of subsistence for the inhabitants. They are not agricultural labourers, there are no factories hereabouts, and Sevenoaks is too far away to support the idea that Shoreham people earn their living in that town. It is one of those little mysteries I have often wished to solve, but anyway, the folk always look happy and prosperous.

Careful watch must be kept for points 34 and 35, where at the last mentioned we enter a lane so beautiful

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and so unspoiled by any mundane surroundings that it is hardly believable we are within 70 minutes' drive of the centre of civilisation at Piccadilly Circus. This by-way is a veritable delight, reminding one of the glorious lanes that climb up into the Quantock Hills, between Bishops Lydeard and Williston in north-west Somerset.



SOME KENTISH BEAUTY SPOTS.—See article by "The Man at the Wheel."

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At point 40, the route strikes back for Croydon, a hundred times preferable to that usually followed by motorists from Sevenoaks, Hastings, or Bexhill, who want to reach the centre of London. A finger-post here has one arm pointing to Bromley and London and the other to West Wickham and Croydon. The latter cuts off the bumpy, dusty main road into Lewisham, and although tramlines start at Croydon, the surroundings are pleasanter, whilst it is possible to avoid the tramlines from Streatham to Westminster Bridge by dodging across Clapham Park and Clapham Common, and so across the Thames by the Albert Bridge to Victoria.

Should any reader elect to follow the 83 miles of route here set out, perhaps the Editor will kindly find room to publish any criticism, and in particular whether the directions are explicit enough for strangers.

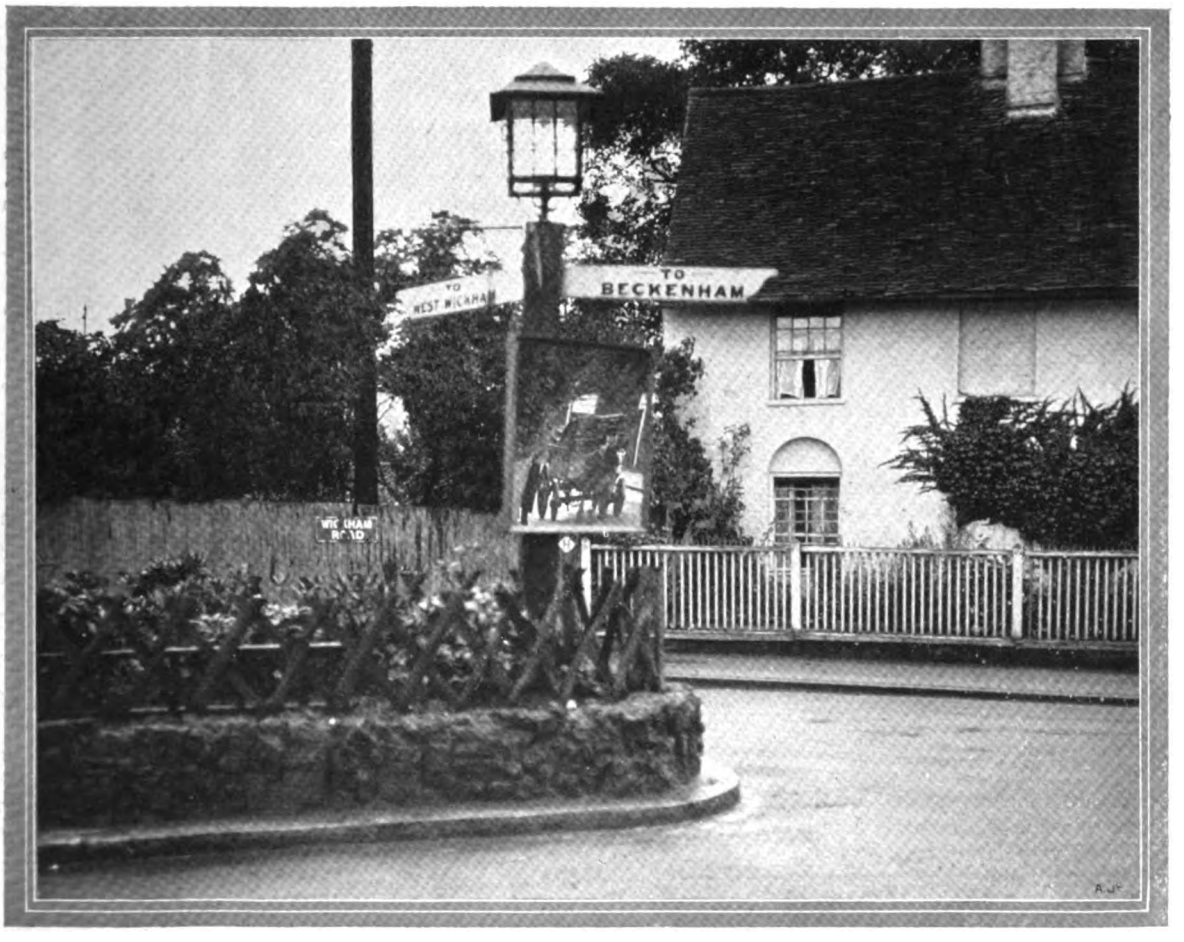
For once in a way I had the novel position of passenger, and not having to keep continuously on the watch for other vehicles, was able to devote more attention to the scenery, and to the working of the car from a third party's point of view. It was a good man who drove me, too, for I watched his actions closely; he respected the rights of other road users, and turned corners with caution in a way that added much to the genuine pleasure that the use of the car itself was able to give.

There is always a satisfaction, after all, about a smoothly-sprung automobile that sits the road as well as the Wolseley does, and is drawn by a steady quiet-running engine that gives no trouble in action, and starts on the first pull of the handle after it has been at rest. Three of the four speeds with which this car was fitted were useful, too, on this little jaunt, for of all the 63 miles of the journey scarcely a piece is level or straight, and, indeed, it needed a small car that is sound of lung and docile under good management to perform such work with the real ease and comfort that we obtained on this occasion.

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Nails and Screws on the Highway.

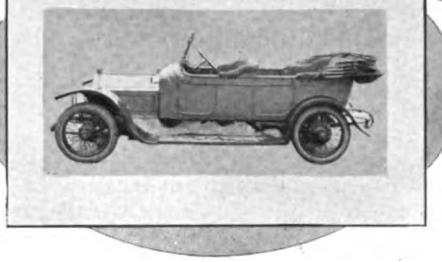
THANKS to the efforts of the police and the A.A. and M.U. patrols, the offenders who placed a quantity of nails and screws on the main road at Chiddingfold, Surrey, during Goodwood week, were brought to book at Guildford the other day. The County Bench, however, only severely admonished the two lads, and bound them over (each in the sum of £5) in the care of the Probation Officer, to whom they have to report themselves monthly during the next two years. It is usually very difficult to trace offenders of this sort, and it is hoped that the action taken, although the punishment was not very severe, may effect something towards the suppression of the nuisance.



Seen in the looking-glass, being the 3-ft. high mirror which has been erected on a signpost at the four-road junction at Beckenham, Kent, for the purpose of enabling drivers to see approaching traffic down the impinging road.

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THE 18-20-H.P. ABERDONIA CHASSIS.



NOVELTY always attracts interest regardless of merit, but it is merit that holds the attention of the critic who either inspects the chassis or drives the car that has lately been designed by Mr. J. H. Strachan, and is known as the 18-20-h.p. Aberdonia. Although constructed on what are nowadays considered conventional lines, closer investigation of the chassis reveals a number of praise-worthy points that are either original in their conception or execution, while on the other hand, the car itself gives more than sufficient excuse for us to offer the designer thereof very genuine congratulations on such a successful first attempt. His object has been to produce a really sound job regardless of time and trouble, and backed by a clever design he has succeeded with wonderfully little delay.

As a machine it is a happy medium in power and size, having engine dimensions that are adequate for every-day use and long distance touring, and a wheel base that accommodates a really comfortable body. Also, a point on which the car excels is its suspension.

It takes close investigation to find some of the many refinements on this chassis, such as the steering column having a variable rake and variable *length*, the doubly adjustable pedals, and the adjustability of the change speed lever. But over all this attention to detail the designer has not lost sight of the main essentials of strength and accessibility, and so we find a strong pressed steel frame with side members that are perfectly straight or flat throughout their length. It will also be noticed that the frame has not been drilled to take the holding down bolts of the body work, but a number of small platforms are bolted to the frame, for the accommodation of the bodywork. These platforms being situated out-side the actual frame permit easy access to the bolts and so allow carriage-work to be attached or removed with ease and expediency.

A remarkably fine piece of work is the engine, which is bolted direct to the main frame. Its four cylinders have a bore of 3½ inches and a stroke of 5 inches, which according to R.A.C. rating should develop 19·8-h.p. They are cast in one block. The engine as a whole is somewhat longer than most monobloc engines of similar cylinder dimensions, but, as we shall see presently, this is by no means a disadvantage; for in this long engine the cylinders are kept well apart, an arrangement which not only tends to improve the water cooling, but also allows plenty of bearing surface for the crank-shaft, an important item where smoothness of running and long life of the wearing parts are concerned. In this engine the crank-shaft is carried in five white metal lined bronze bushes, and is itself of very large diameter, a feature that we consider contributes much to the smooth running of the engine.

Thermo syphon circulation has been relied upon for cooling purposes, but simple as this system is, it is quite worth while to say a few words about it, because some of its points are hidden to the eye. We have already remarked on the fact that the cylinders are kept well apart, so that each is surrounded by ample water spaces, and the same can be said of the valves, the efficient cooling of which is of even greater importance than that of the walls proper. The difficulty in efficiently cooling valve-seats is to keep the water continuously on the move around the valve-pockets, and more particularly to get rid of the hot water around the valve-seats, so as to ensure a plentiful supply of cool water. Owing to the large size of valves employed in modern engines this is by no means so easy as it appears to be; one has only to look at the valve-caps in most of the modern engines to realise that there is no possibility of a water-passage between the adjacent valves, because they are so close together. In the Aberdonia engine, however, a clear water space of some ½-inch in diameter surrounds the pockets everywhere, and the hot water can escape upwards through passages between the port-holes, so that a good and steady circulation is always assured. The radiator—a Zimmermann—is placed in front, and carries a small tank inside the bonnet so as to make sure of a good "head" of water at all times. A fan-belt driven off a pulley on the cam-shaft induces the necessary draught through the radiator.

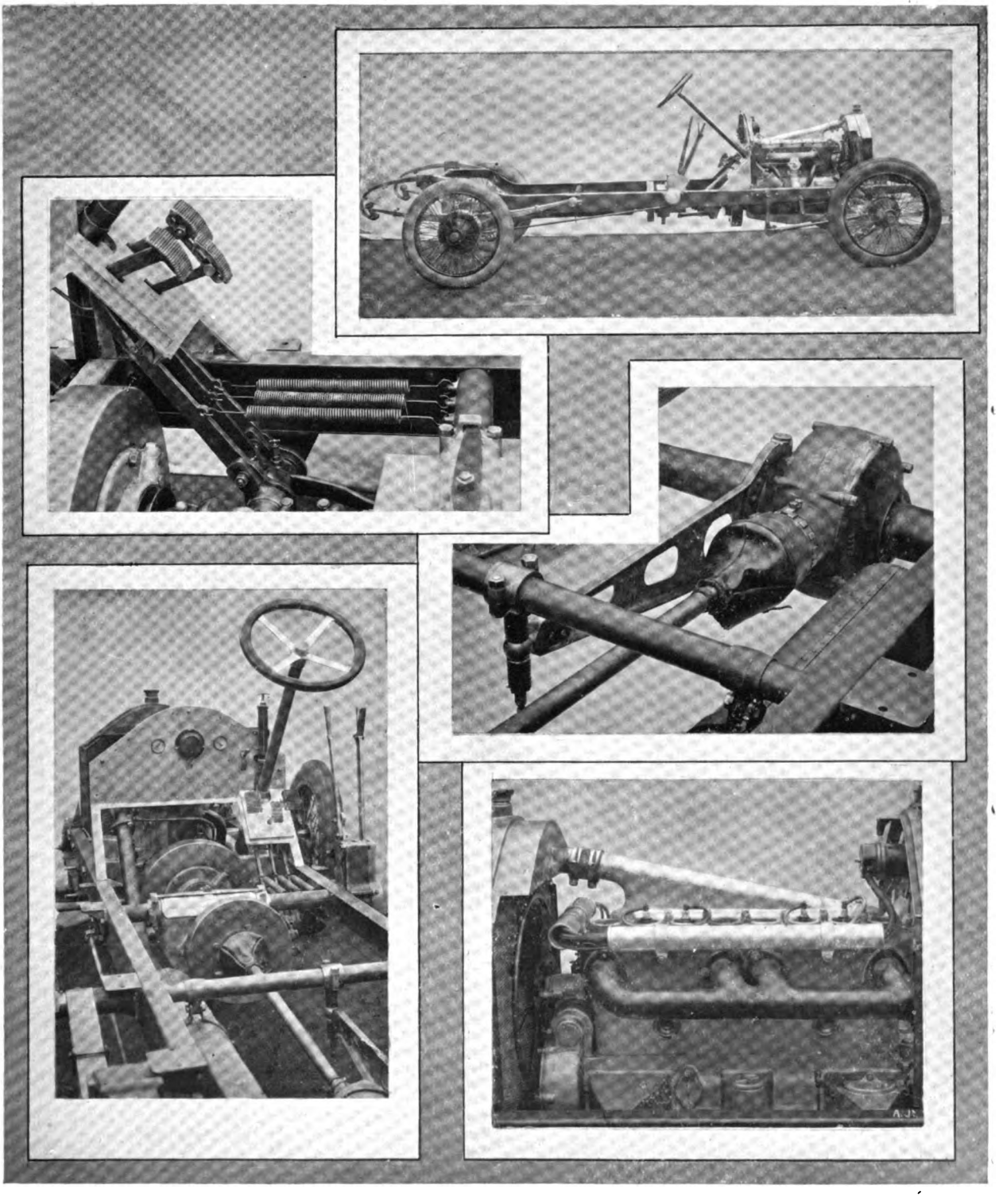
We should not be doing full justice to the lubrication system of this car, were we merely to say that it is the pump fed pressure-system nowadays to be found in every up-to-date engine, for on this car it is such a thoroughly well-worked out system that it deserves special mention. The oil is contained in the sump formed by the lower half of the crank case and, as shown in the side view of the chassis, the lowest point of the oil reservoir is in the centre of the base so as to avoid additional splash or a running dry of the pump when, while going up or down an incline, the oil flows to one end of the casing or the other. The lubricant is filled in through an opening in the rearmost near-side engine lug, and a level-cock is fitted immediately underneath. The hinged cover of the filler opening is connected up to the tap in such a way that both open and close together. Re-plenishing the oil and ascertaining its correct level in the sump is, therefore, rendered a simple and clean proceeding.

The oil pump, which is driven off the cam-shaft is readily accessible, and before the oil enters the pump and oil ways—all of which are inside the engine housing—it has to pass through a large gauge filter that can easily be withdrawn for cleaning purposes. Oil is forced under pressure to *every* bearing inside the base-chamber, with the only exception of the little ends, which rely on their oil supply on the surplus oozing out from the big ends and thrown up by the revolving shaft. Not only is the oil forced to all five crank bearings and the big ends, but it is also sent to the points of contact between the timing wheels, to the bearings of the worm-shaft that drives the

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magneto, and last, but by no means least, to the cam-shaft bearings. It is worthy of note that the cam-shaft runs in no less than seven bearings, which are made of a special close grained cast iron, while the faces of the shaft are hardened and ground. The cam-shaft itself is hollow and the oil is fed to its bearings through the inside of the shaft under pressure.

One of the drawbacks often found in pressure fed lubricating systems that is not infrequently a source of great waste of lubricant is the leakage of oil through the main crank bearings on either end of the base chamber. In the case of the rearmost bearing the oil thus lost is often picked up by the fly-wheel and thrown in all directions; sometimes it finds its way upwards through the pedal slits in the floor boards and adorns the inside of wind screens with innumerable little greasy spots the

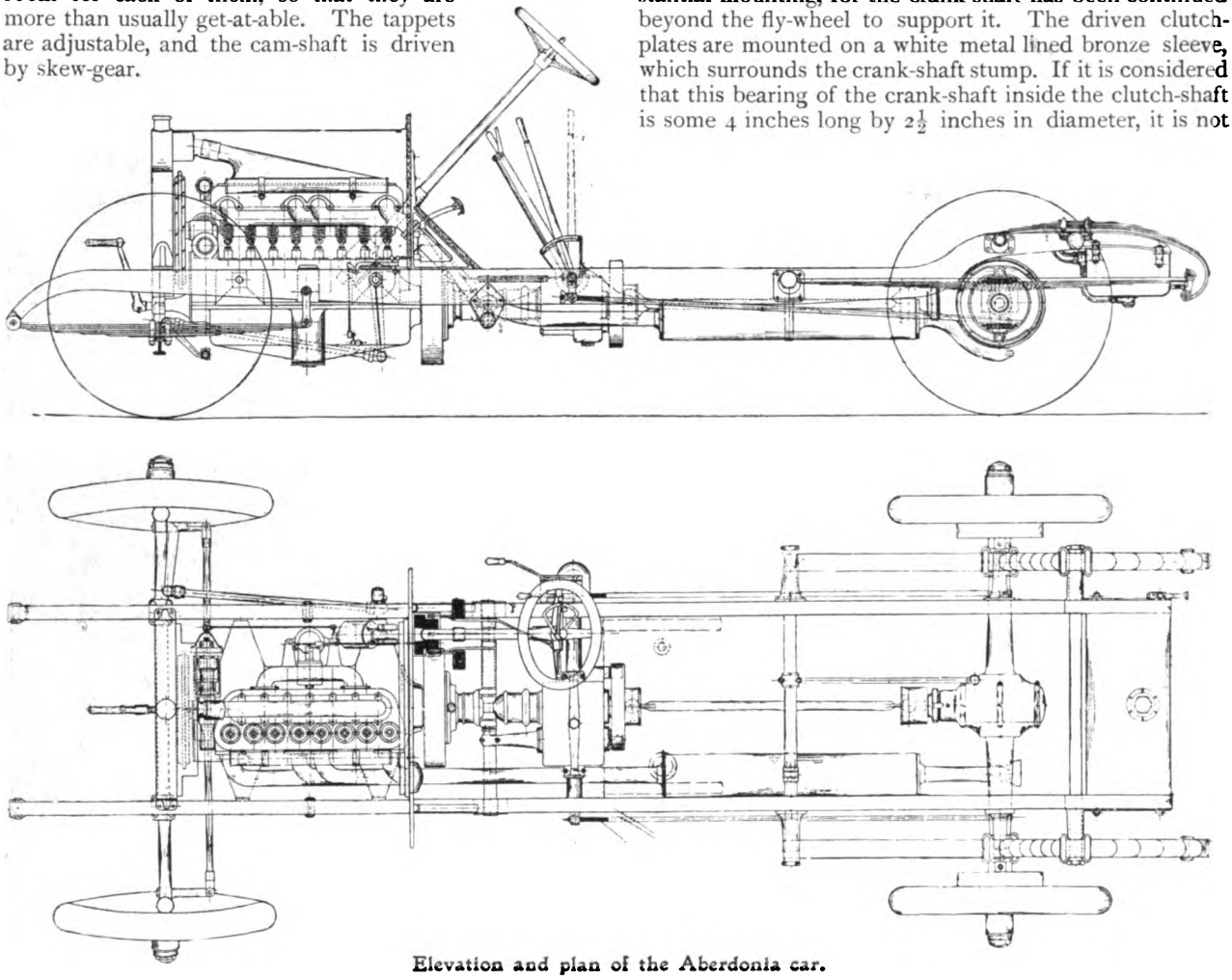


Some views of the Aberdonia chassis.

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origin of which has puzzled many a driver. In the Aberdonia chassis a loss of oil at the end bearings, or for all this at any other place is practically impossible, inasmuch as a spiral oil groove has been cut into the journal of the crank-shaft which—acting as a screw pump—causes the oil to return to the pump instead of being forced outwards by the pressure of the oil pump.

In accordance with accepted practice, all valves are placed on the near-side of the engine, they are covered by a large and substantial aluminium plate, and are readily accessible. The extra length of the engine, on which we have remarked before, has enabled the designers not only to employ very large valves, but also to allow plenty of room for each of them, so that they are more than usually get-at-able. The tappets are adjustable, and the cam-shaft is driven by skew-gear.



Elevation and plan of the Aberdonia car.

Neatness and accessibility are the features of the ignition system. Driven by a transverse worm shaft in front of the engine is an Eisemann H. T. Magneto of the self-advancing dual ignition type. It is mounted on a detachable aluminium bracket and is held in alignment with the driving spindle by an arrangement of three bolts. Two of these bolts are fixed on the ends of the forward side of the magneto bracket, while the third passes through the centre of the back of the bracket and is provided with nut and locknut. When this third bolt, which is visible in the side view of the chassis, is slackened back, the magneto can be taken out by sliding it sideways; when replacing the machine it is impossible to disturb its alignment so long as the two bolts on the other side have not been disturbed; the machine is simply put back and the third nut tightened when it aligns itself automatically. All the essential parts of the magneto are readily accessible when *in situ* and the high tension wires are led to the plugs through a pair of neat and clean aluminium tubes.

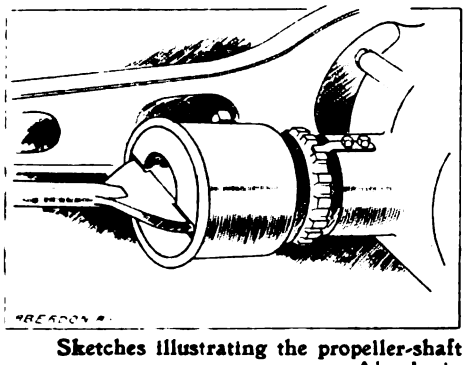
As much thoroughness is shown in the transmission system, and here no less than in the engine, it appears to us that the designers have successfully steered clear of the pitfalls of certain so-called modern improvements and have concentrated their minds on the essential points that make for long life, simplicity and efficiency.

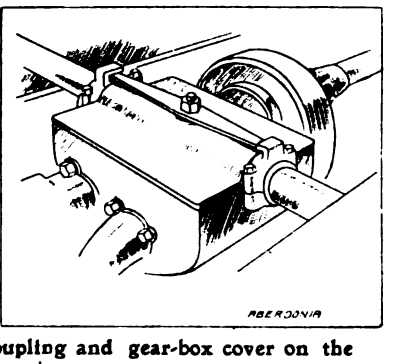
The multiple disc clutch is a good example of substantial mounting, for the crank-shaft has been continued beyond the fly-wheel to support it. The driven clutch-plates are mounted on a white metal lined bronze sleeve, which surrounds the crank-shaft stump. If it is considered that this bearing of the crank-shaft inside the clutch-shaft is some 4 inches long by 2½ inches in diameter, it is not difficult to believe that this clutch when once properly set will keep in line as long as the car lasts, because the wear on so large a bearing—which, in addition, is pressure lubricated from the engine through the hollow crank-shaft—is so small as to have no appreciable influence on the alignment of the two shafts. Oil filler and drain plug are fitted to the clutch casing in such positions that the interior can be washed out without difficulty. In order to eliminate noise and to reduce the speed of their bearing, very large rollers running on ball races are carried on the withdrawing fork, and they are kept out of contact by the spring attached to the clutch-pedal. The universal joint interposed between clutch and gear-box is of a peculiar design. It consists of a bronze pin with a slit cut diametrically

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across it; the end of the shaft is flattened out into a "fish tail," which passes through the slit in the pin, and thus ensures a perfectly free movement in all directions in addition to a small amount of axial movement. The whole joint is contained in a split sleeve, and after this is taken off the joint can be lifted out bodily.

Three speeds forward and a reverse are provided. They are controlled on the gate principle. A peculiar type of three point suspension has been resorted to for the gear-box, which is chiefly supported by a tubular cross member of the frame passing right through the box; in addition, a bracket is bolted to the forward end of the casing and supports it on the pedal shaft. The top of the box is readily removable after turning the large flat spring by which it is held in position, as shown in one of the sketches. A very useful feature is the provision of a modified kind of stuffing box at the bearing next to the foot brake drum. The packing prevents the grease oozing out behind and fouling the brake. Universal joints similar in design to the joint behind the clutch, but larger in size, are fitted to either end of the unenclosed propeller-shaft. They are protected by grease-retaining leather covers.





Sketches illustrating the propeller-shaft coupling and gear-box cover on the Aberdonia chassis.

A particularly neat and workmanlike job is the rear-axle, which contains the bevel-drive and differential-gear. Ball bearings that take end-thrust in addition to radial load are employed throughout its construction, so that a duplication of journals and thrust bearings has been avoided. The drive of the axle is transmitted to the frame through the springs, which for this reason have a remarkably large bearing at their forward anchorage. The torque is taken by a V-shaped pressed steel plate bolted to the differential casing, and supported on its forward end on a swinging bracket in line with the front-hangers of the rear springs. Artillery wheels shod with 820 by 120 mm. tyres are fitted as standard, but Rudge-Whitworth wheels can be fitted instead, if desired, at an extra charge.

A feature of the chassis which is not likely to be overlooked even by the most casual of observers is the suspension. Rarely, if ever, have we come across springs of such dimensions fitted to a car of similar size and power, and we cannot but agree with the designers in their choice of a most luxurious suspension, which, perhaps, more than any other feature contributes towards the enjoyment of a run in a motor car. The rear springs are three-quarter elliptic, and their lower part has a length of no less than 5 ft. 6 ins., *i.e.*, more than half the wheel-base of the car, and a width of $2\frac{1}{2}$ ins., while the semi-elliptic front springs measure 3 ft. 6 ins. in length and 2 ins. in width.

The experience of Mr. Strachan as the head of a large firm of body-builders is shown in the design of the control of the chassis, which can be easily adapted not only for any type of bodywork, but also for drivers of different "dimensions" in more than one direction. All the pedals are adjustable for length above the floor-boards by means of a simple eccentric bolt and nut, similary can the change-speed lever be set to be quite handy for the convenience of the driver and, lastly, the rake of the steering column can easily be set to suit the kind of body-work without having to interfere with the dashboard or anything else.

But not only the angle of the column can be set to the requirements of the driver, the length of the steering column is also variable within a limit of about 3 inches, a refinement which should be much appreciated by drivers who are blessed with a girth above the "normal."

The brakes do not call for any special comment. They are of ample size and are standardized inasmuch as they are interchangeable, that means to say, that brake shoes and springs fit into the foot-brake drum as well as into the rear wheel drums. They are of the internally expanding type, and the hand brake, which acts direct on the rear wheels is compensated by a neat differential gear at the lower end of the brake lever, covered with an aluminium lid.

Steering is by worm and sector and although the frame is not inswept in front a good steering lock is obtained by the track which is about 2 inches wider than usual with cars of this size. High-grade materials and best workmanship only are employed in the construction of this chassis, which we have no doubt will soon find its way among the best high-grade medium-powered cars produced in this country, of which it is a worthy example. The chassis price fixed by the makers, Aberdonia Cars, Ltd., Cumberland Avenue, Park Royal, N.W., is £400, and the two principal dimensions are, wheel-base, 10 ft.; track, 4 ft. 8 ins.

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Rambles in Somerset.

To their Ramble Series, Messrs. Methuen and Co. have added a volume by Messrs. G. W. and J. H. Wade. As its name implies, this book is not a Guide Book in the ordinary sense of the word, but is a sort of travelling companion for anyone who wants to see what is worth seeing in Somerset. The work is not one for those who wish to know the quickest way from here to there, but it is for those who are desirous of taking an intelligent interest in things they see by the way. Starting from Bath, the authors first pursue their way across the centre and then down each side of the county, finally finishing up in the west with a view to embracing in its essential features the whole of the ground. Somerset provides no lack of historical antiquarian details, all of which the authors tell of in most engaging fashion as they lead us in these rambles. Then there are literary associations too numerous to mention here, while the scenery, in all its infinite variety, is described in such a manner that we feel the authors know and love the county of which they write. The volume has a splendid selection of photographs and a sketch map, and the price is 6*s*.

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MOTOR CYCLE MUSINGS.

By VICTOR HART.

Lessons of the 1,000 Miles Trial.

THE statistics of the recently-completed A.C.U. Six Days' Trial give 126 starters, 80 who finished gaining 56 gold medals, 13 silver medals, 10 bronze medals, and 1 not yet decided. Nearly 50 per cent. of gold medallists distributed amongst the starters seems to indicate magnificent performances, but the increased proportion of first-class awards, when compared with previous years, is no criterion. Some machines deserved what they won, many others certainly did not, yet the latter are bracketed equal with better-built and finished productions, leading the public to believe that all the gold medallists achieved the same success. So they do in respect to the official placings, but there is a considerable difference between the minority that carried their drivers through from start to finish without a single mechanical trouble, and the majority which were in constant need of adjustment or the replacing of broken parts. The event was titled a "reliability trial," a twisting of the English language into representing something very different from the real state of affairs. Excepting only removal of engines and wheels, the drivers were at liberty to effect whatever repairs they desired when on the road, and being given a margin of ten minutes either way over or under schedule time, the affair resolved itself into a race between expert machine assemblers and the timekeepers. Were it possible to penalise every medallist who gained an award by the expedient of constantly tinkering with some part of the machine he drove, the proportion of first-class awards would certainly have been reduced by 70 per cent. below the published figures.

Ever since the first trial was held in 1903, the rules and regulations have permitted any machine to be practically rebuilt—barring engines and wheels—from parts secreted on the persons of the drivers, and this fact must be clearly remembered when considering the relative importance of awards to performances.

Faults of Organisation.

The primary mistake made by the Competitions Committee of the A.C.U. (which was solely responsible for the conduct of the 1,000 miles trial), was the selection of such absurdly easy routes. Much of the country traversed was employed for a similar purpose in 1904, at which period completion of the distance was something to boast about. The 1912 machine can put up performances undreamed of in those days, and ordinary common sense would have dictated the arrangement of the routes to accord with developments in design and construction. If the fine weather which prevailed at Harrogate during the 1911 trials had helped the drivers in 1912, at least 90 gold medals would have been gained. The continuous rain this year made the West of England roads into good imitations of skating rinks, and more than all else put together decided the fate of men who otherwise would have realised their ambition. The most glaring instance of a good machine being put out of the contest because of the weather was that of the Chater-Lea side-car driven by Mr. Creak-Davis, of Oxford, who, although connected with the car industry, entered and drove at his own expense, with his wife as passenger. Up to the last 20 miles on the sixth day this machine easily ascended every hill, including Beggars Roost, Lynton and Porlock, was never stopped for a moment by mechanical or tyre troubles, and so far had gained every possible mark. Then water entered the magneto and caused so much delay to put right that Mr. Davis arrived at the depôt beyond the time limit and was classed unworthy of even a bronze medal. Yet less meritorious performances achieved gold medals under a strict interpretation of the rules. Three other machines were also retired through rain entering magnetos *via* the high tension wires on the last day, and these occurrences prove that there is still room for further improvements in alleged waterproof magnetos.

The lessons I deduce from this 1912 event are as follows:—Prior practising over the course must be prevented by keeping every route secret. A mountainous country is essential, where the machines can be truly tested as regards hill-climbing ability, power of brakes, and really rough surfaces that will afford a test as to strength of construction and non-liability of parts to loosen from road vibration. Every mile must be non-stop, *i.e.*, drivers prohibited from dismounting under heavy penalty unless they report reasons for stopping, when adjustments and repairs can be correspondingly penalised upon a regular scale. The whole scheme of the trials re-organised so as to include re-starting on 1 in 6 gradients with but slight leg assistance. Petrol consumption, oil consumption, wear of internal mechanism at end of trial, detachability of wheels in shortest time, accessibility of parts, &c. Limit distance to 150 miles per day and reduce starting intervals between the men to a half minute.

An Appreciation.

What would have been a delightful experience on a 2¾-h.p. Douglas during the Six Days' Trial was spoiled by the terrible weather. All on, including three fully loaded bags of spares and tools, full oil and petrol tanks, large lamp and generator, the machine weighed only 175 lbs., and its handiness enabled me to follow up the competitors, go straight across country to meet them elsewhere, and traverse terribly hilly lanes that I would not have undertaken upon a standard heavy-weight. In eighteen days, which period concluded with the finish of the trial, I covered 1,630 miles without making a single adjustment or mechanical repair, and never touching the belt. Not being satisfied with the compression when the machine first came into my hands, I ground in the valves, and the only other occasion when the tool bags were opened was to repair three punctures on one day and to remove more than a pint of water that a genius poured into the petrol tank at Tavistock.

That is not a bad record when placed against the adjustments and other happenings that I witnessed upon many of the competing machines. How the makers of the Douglas are able to obtain the power out of a couple of horizontally-opposed cylinders is a veritable wonder, for the dimensions are only 60 mm. bore by 60 mm. stroke, the total capacity being but 340 cc. Chain-drive from engine to countershaft with a two-speed dog-clutch change-gear and final drive by a belt, was the successful aid to my easy ascents of Porlock Hill, Lynton Hill, and many others quite as severe which I encountered off the main roads around Taunton. With the knowledge that the engine would take me anywhere and tackle any ascent at which I cared to put the machine, it was a pleasure to arrive back each night with unsoiled hands, and never worry about doing other than replenish the tanks and lubricate the bearings. After my experience, I can truly describe the Douglas as a no-trouble machine.

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MOTORING IN SOUTH AFRICA.

POPULARITY OF LONG-DISTANCE TRIPS.

From Our Own Correspondent.

Johannesburg, July 16th.

SINCE the visit of Mr. S. F. Edge and Mr. Charles Jarrott to South Africa, and owing largely, no doubt, to the opinions they expressed as to the possibilities of long-distance travelling in this country—opinions arrived at from personal experience—somewhat of a craze seems to have arisen among local motorists in the matter of extending their hitherto cramped operations. The Rand to Durban, long looked upon as a daring variant of the Pretoria or Potchefstroom tunes, has now become one of the most popular runs in the country, and almost daily we hear of cars starting from this end for the great over-berg run. The route is yet far from adequately completed, but a month or two is expected to see the work well over and the greatest turnpike in the sub-continent in a fit state for motoring. It is interesting at the moment, too, to notice that the Cape has revived an enthusiasm in roads which unhappily died on the completion of the magnificent stretch around Table Mountain, and that in several districts proper surveys of important roadways are being undertaken. We have had issued, for example, within the past few days a map of the northern route 100 miles out from the Mother City. This promises to be speedily followed by others, so that ere long we may hope to leave behind us the unenviable reputation which Mr. Jarrott left us with—the reputation of being a country where "the common thing is to lose one's road."

A keen interest is again being evinced in the Park Trophy, a competition in which petrol consumption is the main factor. It is a two days' run, one day out to Potchefstroom and the other day back over the old Kimberley road. Entries are numerous, as the contest, which is limited in speed to 25 miles an hour, is regarded more or less in the light of a pleasant outing. The competitors will be followed by hundreds of cars. In the conditions it is interesting to note, in view of the sad fatality at the Baragwanath speed trials, when Parsons, who was strapped on behind, was thrown, appears the instruction that no car may carry more passengers than can be safely accommodated. A wise precaution. Mr. Walter Wilkinson, from whose car Parsons was thrown, and who himself sustained a broken thigh, a fracture, and other hurts, is already about again, though he will be crippled for many months to come. He had a hearty reception on his first reappearance, on Saturday, at his club.

In a conversation your correspondent had the other day with an old resident of Johannesburg who has been in America for years past, an interesting point was mentioned by the stranger. He had remembered the Rand best, he said, by its love of horseflesh. Every tavern had its horse rail; every second man one met affected riding breeches; no one in the town but was a horseman. To-day, he said pathetically, the old order has completely



The front line of the car and vehicle enclosure at the old-world sports which are held annually at Grasmere.

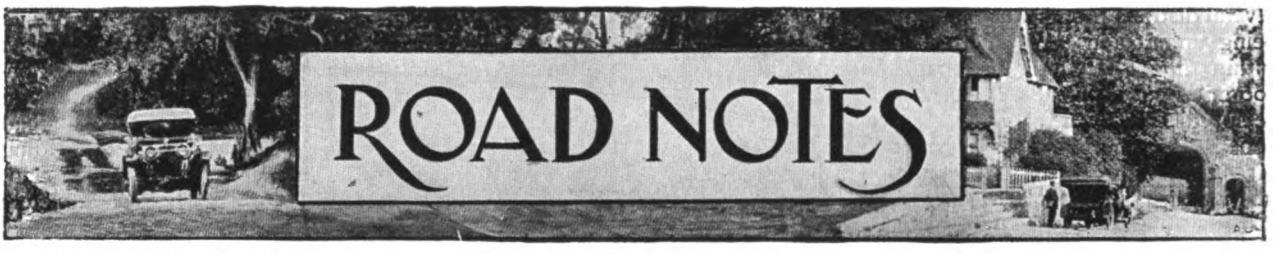
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changed. Not a horse rail, hardly a pair of breeches! Stables have been converted into garages; the motor overcoat has ousted the riding costume. Johannesburg to-day has advanced beyond recognition—in his eyes even beyond romance.

Reflection upon the change from horse travelling brings to mind the remarkable avidity with which local merchants have turned to petrol traction. Dozens of commercial motor vans are in the streets, with immense benefit to traffic in the busier thoroughfares, and an equally immense added convenience to the public. We find, also, that these vehicles are being utilised as an auxiliary to the railway. In many an outlying district, where farmers were isolated from markets through lack of adequate transport, the petrol wagon can do in a day what the ox team took quite a week to accomplish. It can bring to the railway siding in time for the nearest market goods which the farmer had hitherto despaired of disposing of. In this way, in the opening up of districts which in these immense tracts were bound to be left untapped by railway lines, wealthy and prosperous areas will undoubtedly be developed. The same spirit may be found in the railway department itself, many out of the way lines not justifying the expense of a daily locomotive train being now served by the lighter, less expensive, and handier petrol drawn coach. South Africa has not been slow to profit by the experience of other countries, and the next few years should mean a development of her hinterland resources which a year or two ago would have seemed impossible.

A remarkable motor car trip was recently performed by Mr. W. J. Botha, Manager of the Port Elizabeth Motor Agency, on a 12-20-h.p. Humber. In 13 days the car, travelling at times through frightful roads and at times being completely stuck up, made 1,055 miles. There were numerous rivers to be negotiated and some very stiff climbs.

At Prince Albert, for instance, the Zwaartberg Pass was gone through in heavy weather, a stiff gradient twelve miles in length. At one part, Joubertina, the river was impassable and the car had to be trucked back to Avonbuur, some 45 miles distant. The Humber behaved splendidly, the only troubles being a few punctures and a burst tyre.



COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Under repair north of Stamford, full width covered with loose granite, no room left for traffic. Huntingdon-Cambridge road is still under repair. Likely to be flooded at Alconbury against the 66th milestone and also at Matcham Bridge, Alconbury at the 64th milestone for a distance of a ¼ mile, alternative route *via* Huntingdon and Buckden. Members are advised to slow through Darlington and to use their horns freely through the town.

LANCASHIRE.—Members are requested to slow through Garstang 10¾ miles north of Preston.

Preston-Chorley Road.—Stone setts being laid half width in Walton village, 1½ miles south of Preston, lighted at night, special care here.

Blackpool-Poulton Road.—Members are advised to drive carefully through Poulton-le-Fylde and district.

Members are requested to slow through Carnforth.

YORKSHIRE.—*York-Scarborough Road.*—Under repair between 6th and 7th milestones from York, full width.

Middlesbrough-Kirkleatham Road.—Under repair full width between 4th and 5th milestones from Middlesbrough.

Leeds District.—Timing still in hand at Moortown, Leeds; through the 10-mile limit in Burley-in-Wharfedale and Ilkley, ¼ mile west of Malton from the first milestone.

Control between Arthington and Pool, on the Otley-Boston Spa Road, and in Chapeltown Road, Leeds, from Reginald Terrace to St. Mary's Road; also at Moortown (within the Borough of Leeds).

Harrogate.—Control likely to be working on the main road from Harrogate to Leeds, just outside the Harrogate limit.

SOUTH.

BATH ROAD.—Members are requested to proceed with special caution between Hounslow and Colnbrook, and to proceed slowly through Maidenhead. Members are advised to drive slowly at night from Sonning Railway Bridge to about ½ mile towards Reading. Remetalling is taking place ¼ mile west of Marlborough College, roller working.

BRIGHTON ROAD.—Members are requested to interrogate the Patrol at Kingswood cross-roads. Timing between Reigate and Dorking. Under repair between Kingswood and Reigate. Roller between Woodhatch and Horley, full width of road being repaired. Brighton Road, Redhill, is in bad condition through the town.

KENT.—*Dover Road.*—Timing likely to be in hand at Bexley Heath, Shooter's Hill, Blackheath, and Deptford.

LONDON DISTRICT.—On account of timing operations special care is necessary:—Regent's Park Road; near Church End station, Finchley; Golder's Green; Redcliffe Gardens, the Boltons, Earl's Court Road, S.W.; Victoria Embankment; near Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; through Croydon to Purley; between Wimbledon and Ewell; Hounslow-Staines; Hounslow-Colnbrook; at foot of Roehampton Hill; Putney Heath; Harlesden; Maida Vale; Highgate; Holloway; Lewisham, High Street; also between Sudbury tram terminus and Harrow Hill.

MIDDLESEX.—Control working on Staines-Sunbury Common road.

Wood Green.—For the same reason special care is necessary near the junction of Bound's Green Road and Jolly Butchers' Hill.

Controls are also likely to be working in different places between Southall and Uxbridge.

SOUTHAMPTON ROAD.—Controls are being worked at night through Egham. On the Southampton-Christchurch Road, controls are likely to be working between Christchurch Barracks and Iford Bridge; also at Pokesdown Hill.

SURREY.—Controls are likely to be in force at the undermentioned points: South Godstone Station, between Ewell and Epsom, Surbiton, between Kingston and Leatherhead.

Members are advised that all vehicular traffic over the bridge at Woodbridge, Guildford, will be stopped during the re-construction of bridge. Traffic from Guildford to Worplesdon and Bagshot will proceed by the way of Stoke Bridges and Stoughton Road, and from Guildford to Aldershot by way of the Hog's Back or *via* Stoke Bridges from Cemetery Road, Guildford.

SUSSEX.—Members are specially requested to observe the 10-mile limit at Uckfield.

WEST.

Bideford-Barnstaple Road.—Under repair between the 1st and 2nd milestones from Barnstaple, full width.

Members should beware of straying cattle on Bodmin Moor.

Cardiff District.—Timing likely to be in hand in Cathedral Road, from Cowbridge Road to tram terminus, also at Canton on the Cowbridge road.

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Notes from New York

JOE DAWSON, who won the recent 500-mile race at Indianapolis, became automatically suspended under the A.A.A. rules by taking part in an unsanctioned meet at Memphis, Tenn., on July 4th. It is hoped that he will be reinstated before the Grand Prize and Vanderbilt Cup races, and also the big races at Elgin at the end of the month, as he is one of the best racing drivers in the States.

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The Chief of Police at Columbus, O., is trying to induce the City Council to pass an ordinance providing for the sealing of all cut-outs, and making it an offence to have a broken seal on a car or motor cycle in the city. He proposes to have an official sealer, and to charge 50 cents for affixing the seal.

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Cleveland would appear to be by no means a nice place for motorists just now, as the police have been very strict in their interpretation of the laws, especially as regards smoking cars. On two days recently some 435 arrests were made, and in some cases the same motorists were in the hands of the police two or three times in one day. The Cleveland A.C. is taking the matter up and protesting against the lack of discretion used by the police.

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A bye-law has just been passed by the City Council of Coshocton, requiring all drivers of motor vehicles within the city boundaries to be at least sixteen years of age. A fine of from $2 to $25 is scheduled for offenders.

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At its last meeting, the Police Board of Newark, New Jersey, decided to expend $1,650 on the purchase of a car, which will be kept to answer emergency calls for detectives.

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A garage keeper in Bridgeport, Conn., recently filed a petition in bankruptcy and declared that his business had been ruined by the closing of the street, in which it stood, for repairs. It was on the main road from New York to Boston, but the bad state of repair into which the street was allowed to fall led to the traffic being diverted, and the business gradually shrank. Several other tradespeople in the same street have reported bad business from the same cause, whilst those in the parallel road, which now gets the traffic, are rejoicing in a rush of business.

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While serving a sentence in the Denver, Col., county prison, a motor mechanic has re-thought out the old scheme for thwarting the "joy rider." The suggestion is to so attach a syren to the motor that when an attempt was made to start up, an alarm would be given.

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The six-days' reliability trial, which was held in Texas from July 22nd to the 27th, and for which only farmers and ranchmen were eligible, was a great success. There were 27 competitors, and 15 finished up without having lost any marks, so they decided to draw lots for the silver trophy offered by Col. F. P. Holland, and it was won by W. H. Camp, who drove a Reo car. The other 14 competitors divided the prize money of $900 between them, each receiving $64·27.

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One of the latest accessories to appear on the New York market is the "Warm Hand" wheel, an arrangement by which the steering wheel is warmed either by heated air from the motor or by a special electrical attachment. It is claimed that by its use, driving in January will be as comfortable as in August.

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Down in Southern California, there is a particularly fine stretch of road on which motorists are very sorely tempted to indulge in a sprint. The local farmers put up several notice boards asking motorists to go slow, but none had any effect until one bright wit put up an immense sign on which, in letters nearly seven feet tall, was painted, "Please slow down to 65 miles an hour." That did the trick.

• • •

It is stated that a good deal of smuggling of motor cars from the United States to Canada has been going on for some time, and the Canadian Government are now taking measures to prevent it. The duty on cars going from the States to Canada amounts to one-third of the car's value, and as the frontier has not been very closely watched there has been great temptation to rush the Customs. As one American paper puts it, the Canadian agents of U.S. firms are "sawing wood and saying nothing," but it is hardly likely that any of them are concerned in smuggling operations. The offenders are mostly private motorists, and it is stated that those who have been caught have been given the alternative of losing their car or of paying its full price.

• • •

The Studebaker Corporation has decided to drop the designation, "E.M.F. 30" and the "Flanders 20" for the two cars made in their Detroit works, and in future they will be known as Studebaker cars. The Corporation have had new name-plates made for affixing to cars already in use.

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Pennsylvania has decided that its number-plates for next year shall be olive green with white letters and figures, and 75,000 sets have been ordered, an increase of 15,000 this year.

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With regard to the statistics as to exports from the United States which were given in our last issue, Mr. O. P. Austin, the chief of the Bureau of Statistics in the Department of Commerce and Labor, has stated that the figures are a true index to the export business being done by American manufacturers. In the early days of the industry the figures often included those machines sent abroad for pleasure purposes by their owners, but now the figures issued represent only those machines and parts shipped to be sold abroad, and indicate the increasing demand in other countries for American products.

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CORRESPONDENCE.

Self-Starters.

SIR,—In view of the interesting question of self-starters for automobile engines, and holding the opinion, as I do, that within a very short period the car whose engine will not start without the laborious and *dangerous* operation of turning a starting-handle will be a drug on the market, added to which the already considerable inquiry which I, for one, am experiencing at the hands of contemplating purchasers, I feel compelled to reply to some of the veiled condemnation in advance of these very excellent devices. Of compressed air and springs I have little or no experience, and I agree with another writer that they are expensive and require attention. But what other part of the motor does not require attention, and therefore, these are not exceptional in that respect. Of electric and of acetylene self-starters I know some, and am confident that the electric will be the eventual device to be adopted. It is already being largely used because it is so natural that it should be. Everybody must realize that the electric dynamo lighting is here to stay and is a pronounced success. If it needs attention, and any experienced chauffeur can give it the desired attention, it only comes within the scope of his ordinary duties, and this being so, the application of a similar dynamo to a self-starting arrangement is a small step. I believe, also, that if such a device will work for two months it will work for twenty years, subject to usual wear and tear.

I do not wish to use this letter as an advertisement for cars in which I am interested, but I am happy to know, as a motorist, that all my cars will, in the near future, be fitted with electric starters. But what is to become of all the old-fashioned cars which now need that everlasting cranking? On the cold winter mornings too, when it is such a laborious undertaking to start a large-powered car. It seems to me that the only solution is the fitting of the inexpensive acetylene starter, which is to-day a success, and its only drawback is the fact that the supply of gas is exhaustible and needs replenishing like the petrol in the tank. Of this device I can now speak with the practical experience of six months or more. It has no other defect. All the suppositions of danger, sooting up, and other imaginary evils are non-existent. It is possible, it is true, for the engine to become stationary with the crank of the firing-cylinder on a dead centre; in which case it has to be moved off, but this is a remote contingency, and in effect does rarely occur. During the six months I have only known the device to fail once, and I could not find the reason, especially as it started a few minutes later upon receiving a second charge of gas. If any motorist or manufacturer of cars can explain to me why it should not be a complete success, or how it can be dangerous to the user, I shall be glad to know it. For the moment I can speak with unqualified praise of this device, and for the bringing up to date of existing cars, I can strongly recommend it. The cost of doing so with a complete outfit is £15 to £17; any skilled mechanic can fit it to the car, and it is, therefore, easy of achievement.

Before concluding my letter I should like to point out what appears to me to be a weak point in an article which appears in the AUTO. of August 24th. The writer assumes that these devices must necessarily become useless after a few months' use, and as the article is written as a result of the writer's experiments, I do not think he is wise in drawing such conclusions until the necessary time has expired to enable him to know the result.

Secondly, he passes over this most important of all the devices (the acetylene device) with a passing remark as to its dangerous character and the disadvantage of *not always starting*.

The device is much less dangerous than the petrol tank and its inflammable contents. And what if it does *not always start*, and one is inclined to concede that point. I imagine every driver will be satisfied if he knows that it will start if it is in proper working order.

The observations contained in the latter portion of that article seem to show that the writer, in common with most other car owners and drivers, is anxious for the day to dawn which brings with it the emancipation from the handle grinding, and I do not think it will be long before he has an acetylene starter fitted to his car.

89, Wigmore Street, W. EDMD. GASCOINE.

Motors and Divine Service.

SIR,—The A.A. and M.U. has received the following letter from the Rev. W. Manning, M.A., The Rectory, Chipping Barnet:—

"Kindly do not imagine that this letter is inspired by any professional prejudice against Sunday motoring. I fully and frankly admit that a man has a perfect right to motor on Sunday, and I desire only to plead the cause of a minority. There are still in England not a few people who attend public worship on Sunday, and the general custom is for such worship to be between the hours of 11 and 1 and 6.30 and 8.

"My church being situated at the top of Barnet Hill where the Watford and Hatfield roads divide, we are, perhaps, disturbed more than most congregations in consequence of our situation; but the disturbance affects all places of worship on or near main roads. Especially during the summer months, and to some extent during the whole year, the cars passing the church are an almost incessant disturbance to worship, and often render parts of the sermon inaudible to the congregation.

"Again permit me to assure you that I write in no captious spirit, but I venture to ask you if you could, through your Association, help the people who attend church. Would it be possible for us to adopt some signal which could be exhibited from a church during the hours of Divine Service, which would imply the request that motorists should, when passing a church exhibiting that signal, do so with the minimum of noise, or even at a reduced speed. Those who attend places of worship would, I am sure, be grateful; and I feel convinced that the vast majority of motorists are people of such good feeling as would not only make this request appear reasonable, but would also make them not resent the inconvenience of losing a few moments by reducing speed.

"In conversation with several owners of cars, I have been told by them that it is only because motorists are unaware of the disturbance that they cause that the trouble arises. It seems to me that if a public opinion were created in the motoring world that it was bad form to pass a church during the hours of service with any noise, the trouble from which we suffer would be removed, and I know of no one who can, or would be, more willing to assist in the creation of such public opinion than your Association. This is my apology for bringing the matter to your notice.

(Signed) "W. MANNING."

My committee feel that the request is an eminently reasonable one and they therefore appeal to motorists to take all possible precautions to remove any cause for complaint, both by reducing speed and by refraining from any unnecessary use of the horn when passing places of public worship during the usual hours of service on Sundays.

STENSON COOKE, Secretary A.A. and M.U.



A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Route Cards Through Towns.—With a view to assisting members when passing through towns and cities where it is difficult to follow the direct route, the Association is preparing a series of guide cards. Several of these cards are already available and can be obtained gratis, by members, upon application to the London headquarters or any of the branch offices. The towns so far dealt with are:—

Brighton, Burton-on-Trent, Canterbury, Carlisle, Chelmsford, Chester, Colchester, Coventry, Doncaster, Harrogate, Lancaster, Leamington, Newcastle-on-Tyne, Preston, Reading, Stamford, Warwick and Wick.

Speed Limits.—Members interested are reminded that an application for a ten-miles speed limit order for Highgate will be heard on September 3rd; also that a *five*-miles speed limit is being asked for with regard to Richmond Bridge and Bridge Street, Richmond, against which objections must be lodged on or before September 4th. The Association is dealing with both these applications, and the Secretary will be glad if members able to supplement the information and facts already collected will do so and communicate with him without delay.

Motor Cyclists and Army Manœuvres.—Several motor cyclist members signified their willingness to serve in the Army manœuvres, and the requisite number have been selected. The Secretary will, however, be glad to hear from those not selected whether they are ready to serve should the Army authorities ask for additional motor cyclists at the last moment. Those who have been enrolled must meet at the appointed rendezvous on September 13th, the day prior to the manœuvres.

Troops on Roads.—In view of accidents which have occurred in previous years while manœuvres have been in progress, members are asked to drive with due care and discretion, especially at night time, when passing along roads likely to be used by moving bodies of troops.

Observation Mirrors for Horse-Drawn and Heavy Motor Vehicles.—The Association has already induced several proprietors of vans, motor lorries and vans, and steam traction engines, to fit mirrors to enable the drivers to see traffic coming up from behind, and thereby avoid unnecessary obstruction. A step further in this direction has now been taken by a county authority which is considering the advisability of obtaining a bye-law incorporating this reform. The authority in question has courteously asked for the views of the Association, and a bye-law covering the requirements has been drafted and submitted by the Association.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.: JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last; owing to the fact that many members are touring, a quorum could not be formed, and only formal business taken.

Present: Mr. A. J. Allison, chairman; Mr. H. Pye, trustee; Mr. Oliver, and Mr. Emmerson.

Application for legal aid was made by member No. 274 for exceeding the speed limit at Hampton. The secretary reported the member in benefit, and the application was granted.

Members will please note that the police are very active in this neighbourhood.

N.S.C. Garages.

Application for honorary membership was made by Mr. A. E. Belletti, Station Road, Falmouth, and also for the appointment of his garage as N.S.C. Garage for Falmouth. The application was granted.

Letter-Box Robbery.

The secretary reported that he had carried out the instructions of the committee in this matter, which had now become very serious, over thirty postal orders having been stolen, besides valuable correspondence having been destroyed. The alleged thief was arrested on Friday, 23rd, and remanded until Friday, 30th. Although the prisoner pleads guilty, the Society has to prove his guilt; this will entail considerable inconvenience to members concerned and to the secretary. The committee have, however, in prosecuting, a duty to perform on behalf of the general membership, the staff, the other employees at the garage, and to the public.

Members Please Note.

In the official notes members have been earnestly requested to make postal orders payable to the National Society of Chauffeurs and cross them; we are still receiving postal orders left open, surely it is not a deal of trouble to protect yourselves as requested.

Intimation has been received that the costs due from the L.C.C. have been paid into Court, therefore no appeal will be made against the decision. We are pleased that the Council thus acknowledges our claim to a licence at a fee of 1*s.*, and we are now prepared as dutiful citizens to faithfully carry out the regulations governing this licence.

Accepted for Membership.

R. G. Tipping, Newport, Salop. | R. H. Cooke, Athenry, Co. Galway

Applications for Membership.

Simon Rae, Argyllshire. | Albert Burnett, Regent's Park.
H. J. Brown, Downham Market. | George Cooper, Wimbledon.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

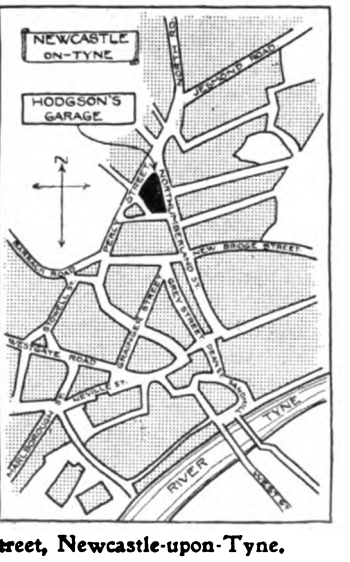
First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

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CLAUDEL HOBSON carburettors did well at the last Brooklands Meeting, cars so fitted winning three firsts and two seconds. The three firsts were in the 100 h.p. Long and Short Handicaps and the Ford car race.

FOG penetration is a strong point claimed for the T. and M. car electric lighting equipment, and Messrs. Trier and Martin, Ltd., of 115, Great Portland Street will be glad to explain to motorists the reasons for this unique feature, or to send booklets on the subject.





N.S.C. GARAGES, No. 11.—Hodgson's Garage, Northumberland Street, Newcastle-upon-Tyne.

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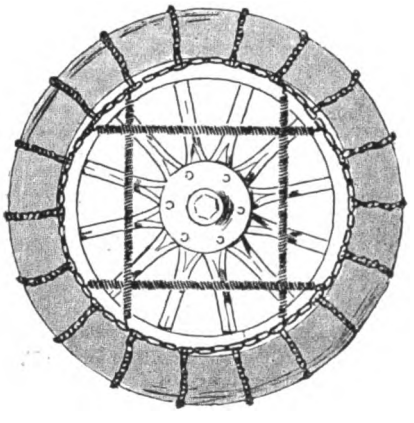
Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

79.

SILENT NON-SKID CHAINS.—It has often occurred to me that the cars which American tourists bring across to Europe are all fitted with more or less peculiar looking tyres. They have all sorts of funny patterns on their tread, but in one thing the tyres are all alike, *i.e.*, they are all-rubber. I do not remember one such car, and I came across a great many in the touring season, that brought a steel-studded cover across the Atlantic. Whenever you see such a non-skid on an American's car, you will find upon inquiry that it has been fitted in Europe.

Steel-studded tyres indeed are very little used in the States, because the American does not see why he should



pay a higher price for tyres that do not, as a rule, last as long as the all-rubber variety; therefore his preference for the latter. But in his tool-locker the American chauffeur always carries a pair—or more—of Parson's non-skid chains, which he puts on and takes off whenever necessary. To me it seems to be a case of the prophet who is not honoured in his own country, because these non-skid chains, which are universally adopted in America, are the invention of Mr. Parson, the well-known garage proprietor of Southampton.

Our hyper-sensitive nerves, however, object to the jingling sound the chains produce when fitted on the wheel, and I daresay it has happened that when fitted hurriedly such a chain has now and then hit the mudguard and set up a very objectionable noise. But this is not the fault of the chains, which are almost noiseless when properly applied. It appears, however, that even in America some people have nerves and take exception to the "jingling." According to *The Automobile* an Alleghany chauffeur has found a way to eliminate it, and I am sending you an illustration from this paper that shows how it is done. The sketch is self-explanatory, and I think will be appreciated by many a chauffeur who in this wet weather has found it difficult to start on some hills owing to one or both rear wheels failing to grip. In cases of this kind I have found Parson's chains particularly useful.—*B. Linter.*

80.

HORN AS PETROL FUNNEL.—If you had run out of petrol and the driver of a passing car were to offer you some out of his tank, how would you transfer the liquid from one tank to the other in the absence of any kind of vessel or tube? Such was the problem that confronted me the other day when I found myself with an empty tank, and an obliging taxi-driver had pulled up and offered me some petrol out of his nearly full tank. Neither of us had anything resembling a can or a pipe, and I thought of disconnecting my petrol-pipe and syphoning the fuel from the taxi's tank, which is under the front seat, to mine under the rear end of the frame. But then I noticed the rather large horn of my car, which could easily serve as a vessel and funnel at the same time. I therefore took it off, disconnected the petrol-pipe of the taxi at the tap, filled the horn, holding my thumb over the reed end, and carried it over to my car, where I emptied it into the tank. This operation repeated four times, and a coin that changed its owner, sent both of us on our way with smiling faces.—*Edward Hammer.*

81.

ANOTHER SOLDERING FLUX.—During the last few weeks several kinds of soldering flux have been described and recommended in the "Chauffeurs' Page" of the AUTO. Here is yet another which for simplicity, handiness and cheapness, is far ahead of all those that have been mentioned so far.

The flux I always use is just a common piece of ordinary candle, which, after the "work" has been thoroughly cleaned, is rubbed or scraped on the article.

When the copper-bit is sufficiently hot, drop a little solder on the metal and the whole of the candle-scrapings will be seen to melt quickly. The solder will flow and "take" as easily as you can wish for, and on completion of the soldering the job will be found to be quite clean.

For tinning the copper-bit there is nothing as good as a piece of sal-ammoniac, which is cheap, handy, and cannot be upset like acid.—"*Twelve Years.*"

MAXIMS.

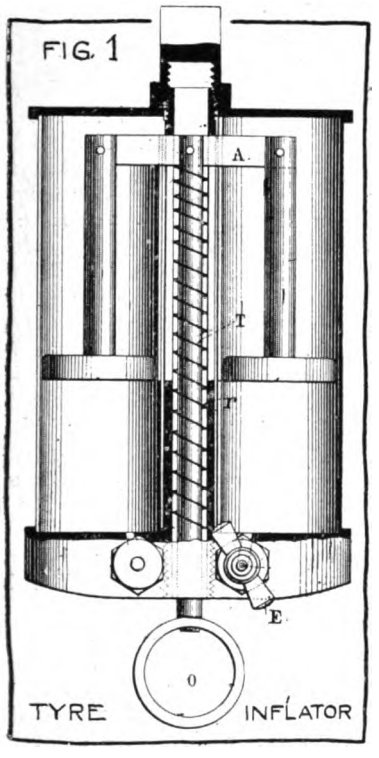
When the hood is folded down, see to it that it is tightly strapped on to its brackets so as to eliminate any chafing.

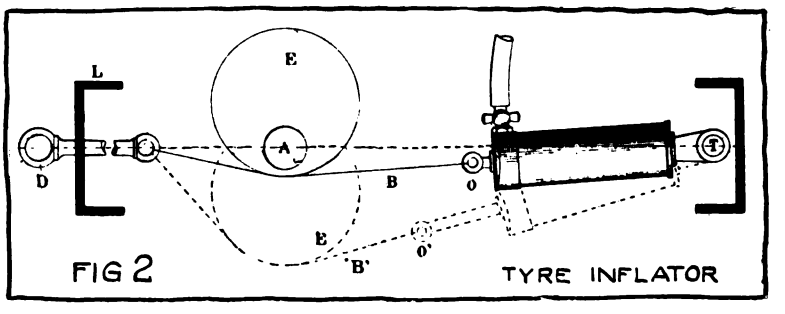
A Cape cart hood is meant to serve as a protection from rough weather, not as a luggage carrier or spare seat.

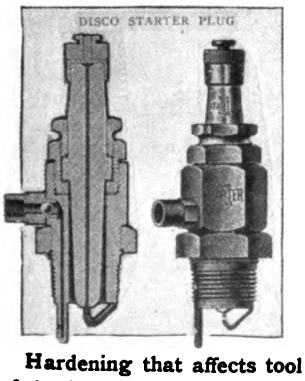
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FOREIGN MISCELLANY

A French tyre inflater.—This curious piece of mechanism consists of a double-barrelled pump (Fig. 1) the pistons of which are attached to the crosshead, A; the return stroke takes place under the action of the spiral spring, *r*. The pump itself is pivoted to the frame at T, while a metal band connects the ring, O, in which the return piston-rod, T, terminates, with an anchoring bolt, D, fixed in the opposite frame member. An eccentric, E, is fixed to the cardan shaft, A (Fig. 2) so that the rotation of the shaft causes the metal band, B, to actuate the pump pistons and so compress the air in the pump cylinders.—*Vie Automobile.*





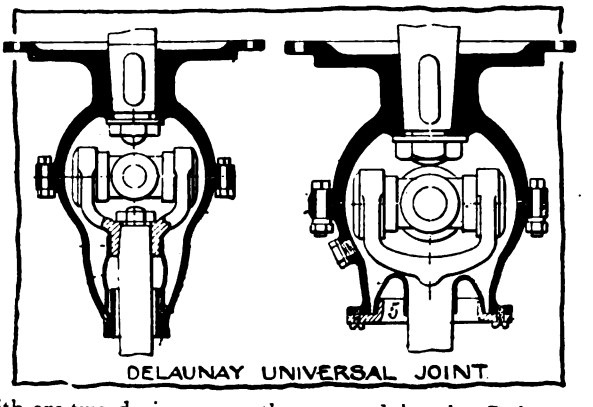


The acetylene self-starter has called into existence a special ignition plug (Disco) illustrated herewith. It should be found useful in those cars where but one plug opening is provided to each cylinder. It may also be found an improvement in that it brings the acetylene gas close to the point of ignition and so promotes easy starting.—*Motor World, N. Y.*

Hardening that affects tool steel.—Tool steel, especially of the better sorts, is seriously affected by overheating; hardening always should be done at the lowest possible temperature, therefore, in order to bring out the best that is in the metal. Before hardening a piece of tool steel that is of value for any reason, or which is required to work up to its full capacity, it is a good plan to cut off a few small pieces from the blank end and heat and harden them experimentally, so as to ascertain the lowest temperature at which they will harden satisfactorily.—*Motor World, N. Y.*

Tyre wear in track races.—The tyre nightmare has faded a little into the background during the last year, but still there were over ninety changes made on the twenty-four cars in the 7,700 miles which was the grand total distance travelled by all of the cars in the Indianapolis 500 mile race. This gives an average tyre life in the race of 85 miles. The tyre story of last week was an entirely different one from a year ago. In the 1911 race the tread strips on the tyres came off, when otherwise the tyre did not show any wear. This year there was scarcely an example of tread strips coming loose, due to the buffing or grinding away of much of the surplus rubber on the tread. In some cases the buffing was carried on until the fabric was almost exposed, and while this seemed to weaken the tyre it operated otherwise in that it permitted a rapid radiation of the heat from the tyre. Getting the heat out of a tyre saves it. With the thick rubber treads the heat cannot get out and the air within expands, causing blowouts. Tyre buffing has been in vogue for over two years, but never before was it in so general use in a speedway meet. The buffed tyre wore until the fabric was exposed, and often the entire fabric was a mass of shreds after a blowout and when the car pulled up at the repair pits.—*Motor Age.*

The protection of the universal-joints is a matter which is often overlooked in car construction (partly, perhaps, because it is not an easy nut to crack !). Illustrated herewith are two designs recently patented by the Delaunay-Belleville firm, and which are self-explanatory.—*Vie Automobile.*



REMEMBER.

Your right hand is the organ of politeness, with which you are expected to make known your intentions to others. Do not, therefore, tolerate a control that makes you discourteous.

Good judgment is better than great skill when you are driving for pleasure.

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RACES, RECORDS AND TRIALS.

Brooklands Meeting, Saturday, September 28th.

EIGHT events, including a motor cycle handicap and an aeroplane handicap, have been arranged for the B.A.R.C. Meeting to be held on Saturday, September 28th. One of the events will be the "Fourth Race for the O'Gorman Trophy." Below, we give a list of the events:—

1. **The Ninth 70 m.p.h. Short Handicap.**—For cars the maximum speeds of which are about 70 miles an hour or less. Distance about 3¼ miles.
2. **The Eighth 70 m.p.h. Long Handicap.**—For cars the maximum speeds of which are about 70 miles an hour or less. Distance about 8½ miles.
3. **The Ninth 100 m.p.h. Short Handicap.**—For cars the speeds of which are about 70 miles an hour or more. Distance about 5¾ miles.
4. **The September Sprint Race (a Handicap).**—For cars which have done flying laps at about 70 miles an hour. Distance about 2 miles.
5. **The September Private Competitors' Handicap.**—Distance about 5¾ miles.
6. **The Fourth Race for the O'Gorman Trophy.**

Motor Cycle Event.

The Twelfth Short Motor Cycle Race (a Handicap).—For all classes of motor cycles. Distance about 5¾ miles.

Flying Event.

The Fifth Aeroplane Handicap.

Next Year's French Grand Prix.

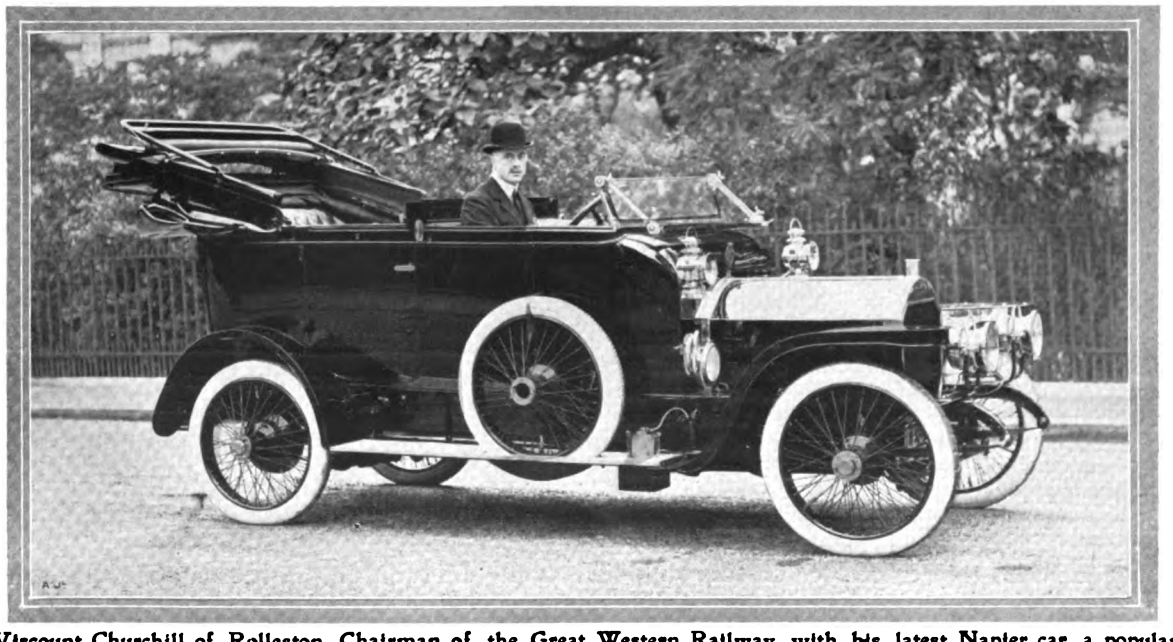
IT is officially notified that the first three numbers have been allotted for next year's race, to the entries received from the Sunbeam Motor Car Co., who have made such a magnificent showing this year in France.

A French 3-Litre Race Next Year.

THERE will be another race for the 3-litre cars in France next year, as our contemporary *l'Auto* has decided to again organise its "Grand Prix des Voitures Legères," and in the main the rules will be the same as have governed the two previous races. The maximum cylinder capacity will be 3 litres, but it is foreshadowed that for 1914 the rules may be altered so that the fuel may be limited as in the proposed A.C.F. Grand Prix Race, while it is suggested that the oil should be similarly limited. The end of June, 1913, has been provisionally fixed for the date of the race.

The French Grand Prix for Motor Cycles.

ON Sunday, this important race was run off over the Fontainebleau circuit and proved a splendid victory for British machines, the three first places in the third category for motor cycles up to 500 c.m. being taken by Godfrey on an Indian, Devay on a Triumph, and Franklin on another Indian, in the order named. The length of the circuit was 30 kiloms., which had to be covered 15 times by the motor cycles and 12 times by the side-cars in a maximum time of 12 hours, giving a total distance of 450 kiloms. for the former and 360 for the side-cars. Godfrey's time was 6h. 34m. 59s., giving an average of 69 k.p.h., his best time over a single circuit being 24 mins. 5 secs., showing an average of 75 k.p.h. Devay's time was 6h. 55m. 14⅗s., and Franklin's 7h. 5m. 24s. In addition, Graham on another Triumph established a record for single-cylinder machines for a single circuit with 24 mins. 7⅕ secs., about 74½ k.p.h. The send-off, in fine rain, was at 5.15 a.m., Vanella being the first away on a Rene Gillet side-car, the other competitors following at regular half-minute intervals up to 5.21 a.m., the last despatched being Graham on a single-cylinder Triumph. The latter travelled splendidly, and at the finish of the first circuit was leading, followed by Franklin, Godfrey, Devay, &c., Graham again being at the head for the second circuit, but after this a puncture upset his premier position, and subsequently he was very badly handicapped out of the race by illness. Tyre troubles resulted with most of the machines, although Godfrey and Vanella managed to capture only one each. In the side-car first section Vanella secured first place in 8h. 36m. 20s., whilst Chartier-des-Varennes, on an Indian machine, took first place in 9h. 20m. 57⅗s. in the third category for side-cars



Viscount Churchill of Rolleston, Chairman of the Great Western Railway, with his latest Napier car, a popular 15-h.p., he also being the owner of a 45-h.p. 6-cyl. limousine of the same make.

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Boulogne Meeting.

Two items constituted the programme for cars and motor cycles at Boulogne Motor Meeting, held on Sunday and Monday last. On Sunday the contest was over a flying kilometre for the Henon Cup, and next day it was a hill-climb over 300 metres, standing start, for the Karaman Chimay Cup. For the kilometre, the Tourist Section filled fairly well, the best time being made by Joerns, on an Opel, with 29$\frac{1}{5}$ secs., other winners in their categories being an Isotta-Fraschini, 39$\frac{1}{5}$ secs.; Hispano Suiza, 34$\frac{4}{5}$ secs.; and Rigal, on a Sunbeam, with 40$\frac{1}{5}$ secs., Boutmy, in the same category, on another Sunbeam, making 42$\frac{3}{5}$ secs. In the racing cars Boillot, on his Peugeot, put up 28$\frac{1}{5}$ secs., securing thereby the Henon Cup. Leduc's S.P.A. got first place with 36 secs. in the 4th category, Riviere (Hispano Suiza) 37$\frac{1}{5}$ secs., in the 6th category.

A fine performance was made by Crouy, on a 4-seated Hispano Suiza, on which he obtained a speed of 105 k.p.h., this car having previously done some 20,000 kiloms. touring, and almost immediately before the race had finished up a tour through the Vosges.

The result for the climb up the Gayole Hill on Monday gave Joerns, with his Opel, first place again in the Tourist Class with 20$\frac{1}{5}$ secs., others doing well being Crouy (Hispano Suiza), 24 secs., and Rigal (Sunbeam), 25$\frac{2}{5}$ secs. In the Racing Class Boillot was at the top with 15$\frac{2}{5}$ secs., Crespelle next best with 20$\frac{3}{5}$ secs., and Riviere (Hispano Suiza), 23$\frac{1}{5}$ secs. For motor cycles Grapperon (Griffon) made 29$\frac{4}{5}$ secs., and in side-cars the New Hudson time was 39$\frac{4}{5}$ secs.

A.C.F. Trial for Motor Cycles.

THE Automobile Club of France appears to be taking a more than usual interest in motor cycles, and announces a six days' trial for motor cycles, tricars and side-cars, to be held from October 7th to 12th. The route will comprise five daily runs of about 270 kiloms. and one of 150 kiloms. Each daily stage will be divided into sections of 40 to 50 kiloms., and an average speed of 30 k.p.h. will be required.

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CURRENT ITEMS OF INTEREST.

The Value of Police Evidence.

IN a case heard at Weymouth the other day, in which Capt. Benett Stanford was summoned for driving to the common danger, Mr. Staplee Firth asked the policeman to estimate the width of the Court-house, and he promptly answered 20 ft., whereas actual measurement revealed it to be 30 ft. Similarly, he estimated the length as far in excess of the actual dimension, and tests in estimating time gave similar results. Mr. Staplee Firth thereupon suggested that the estimate of the speed of the car as 30 m.p.h., was similarly excessive. After hearing the evidence of Capt. Stanford to the effect that he slowed up to 16 miles an hour on entering the town, the Bench dismissed the case.



Cars conveying a number of crippled children to the residence in Lincoln of Mrs. Weigall (*née* Baroness Eckardstein). The cars leaving Lincoln.

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B.M.C.C. Racing Club Meeting.

OWING to the delightful August weather which continued on Saturday last, the British Motor Cycle Racing Club's meet at Brooklands for that day was postponed until September 14th, although a number of competitors had foregathered from Birmingham, Coventry, and other centres. The Executive undoubtedly acted wisely in deciding upon a postponement.

Royal Motor Yacht Club.

THE usual race for the R.M.Y.C. one-design sailing boats, owing to the fearful August weather, had to be abandoned last Saturday. In the afternoon, when the weather held up a little, it was too late for any sport. To-day, Saturday, the regatta programme from the "Enchantress" includes races for the one-design sailing boats, the R.M.Y.C. restricted class handicap for motor boats exceeding 15 knots, and not exceeding 15 knots, and a Spring handicap for all comers. The last two-day regatta of the season is down for September 6th and 7th, when five events have been arranged for each date.

British International Trophy.

ONLY two boats out of the five originally entered for the Eliminating Trials have actually crossed the Atlantic to put up a fight for this country for the B.I. Trophy taking place at Long Island Sound to-day, Saturday. Mr. T. O. M. Sopwith, it will be recalled, is steering Mr. Mackay Edgar's "Maple Leaf IV," and Mr. M. Batting has charge of the Marquis of Anglesey's "Mona," they both sailing on the 17th from Liverpool, together with Mr. Mackay Edgar and Mr. A. J. Stone, the latter representing the R.M.Y.C. on the International Commission.



The late General Booth was, by reason of its great help to him in his evangelistic work, a strong supporter of automobilism, travelling tens of thousands of miles by its aid. Our photograph shows the late General in his 28-h.p. Darracq, taken in front of his private residence at Hadley Wood.

The Tyranny of the Tramcar.

TIME and again have discussions arisen as to the right and wrong side for the passing of tramcars, and although there appears to be a certain amount of rule upon the subject, hardly a day passes without some case occurring in which, if the accepted rule be adhered to, the possibility of getting along on one's journey at a reasonable rate is very remote. Apparently the same nebulous state of the law appears to exist in Scotland, judging from the report of a case in the Dundee Sheriff's Court, upon this rule of the road, in which it was claimed that motorists should pass tramcars on the near side. The motor driver was explaining his experience, when Sheriff Neish asked him if he knew upon which side of the road he must pass a car. The reply was in the affirmative, and the motorist added that there was a law—at least, he thought it was a law—which allowed him to pass on either side. He could use his discretion. The Sheriff pointed out that a motor car must pass on the near side. The motorman's agent said there was great difficulty in following out that rule in Dundee, and the Sheriff, concurring, said that in certain parts the driver would have to go the best part of a mile before he could pass a tramcar. The rule of the road was contrary to that of England. A certain motor car Order made the rule in Scotland the same as that of England, but, so far as his Lordship was aware, nobody paid any attention to it. Therefore, about two years ago, it having been brought to the notice of the Secretary for Scotland, another Order was made recalling the former Order. Adverting to the matter of giving warning of the approach of a motor car, the Sheriff remarked that it had been said more than once that it was a useless proceeding to sound the horn except in times of danger. He was afraid there were a great many streets in Dundee in which, on account of foot passengers, the horn would have to be sounded almost continuously.

Two Motor Shows in St. Petersburg.

NEXT springtime St. Petersburg is to have two motor shows. One, at which most of the principal European makers will exhibit their latest models, will be held in the Michailovsky Riding School, while the other, in the Kamenoostrovsky Sporting Palace, will be devoted to American motor cars, commercial vehicles, and motor boats.

Richmond Asking for 5-Mile Speed Limit.

THE Richmond Town Council, through the Middlesex C.C., has applied to the L.G.B. for a 5-mile speed limit for motor cars crossing Richmond Bridge.

Spoiling Traps.

MR. ERNEST WYER, Surbiton, has come to the conclusion, after an interview with the Kingston magistrate, that it is anything but wise to exercise himself by vigorously waving his arms about in the district of Thames Ditton, on the Portsmouth Road. A couple of police constables took the view that he was endeavouring to intimate to passing motorists that they were in a police trap, a soft impeachment which he most strenuously denied. However, the Bench thought £3 10*s.* 6*d.*, including costs, would meet the case, and no doubt in future Mr. Wyer will be careful how he waves his arms about in the neighbourhood of Kingston. By a decision in the Courts, however, we have an idea exercise of this description is legal so long as you are not *within* the limits of the police-trap. Upon this point, however, it would be as well to consult the A.A. Free Legal Advice Department.

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R.A.C. and Tyre Sizes.

AFTER considering a list compiled by a member, showing that out of 110 tyres of various sizes and makes which had been measured, a great many were under the sizes quoted by the manufacturers, the Technical Committee of the R.A.C. has passed a resolution requesting tyre-makers to stamp the correct sizes on their tyres.

The Days of Straw Are Over.

TIME was when the strewing of the streets with straw indicated that someone was seriously ill. The up-to-date method of lessening the traffic noise, however, is to hang a notice on the lamp-post, reading "Don't Hoot. Illness." Such a sign was recently conspicuously displayed in Camden Hill Road, Kensington.

Speed Limit Signs at Night.

THE General Committee of the R.A.C. Associate Clubs has been giving its attention to the question of illuminating speed limit signs at night, and it has recently decided to communicate with all local authorities, in whose area there are reduced speed limits, requesting them to illuminate the speed limit signs at night.

A Taxicab Strike in Frankfort.

TAXICAB drivers of Frankfort-on-Maine thought the arrival of the Emperor in the city on Monday would be a good opportunity to strike for better conditions of working. The police authorities, however, thought otherwise, and issued an order that the taxicabs were to be out as usual, and any driver not fulfilling his duty would be heavily fined.

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LEGAL INTELLIGENCE.

Cars Not in Use and Licences.

AT Marlborough Street, on the 20th inst., the L.C.C. suffered another defeat at the hands of the A.A. and M.U. Considerable importance attached to the case, as it turned on the necessity of taking out a licence for a car which was not in ordinary use, but merely taken out for a trial run. Messrs. Keith, Prowse and Co., Ltd., were the defendants, and were summoned for keeping a motor car without a proper licence.

For the prosecution it was stated that on March 17th, an L.C.C. inspector observed a large car being driven up Berners Street, and upon inquiry it was ascertained that no licence was held for the car.

For the defence evidence was given that at the commencement of the year instructions had been given for the car to be sold, and on on the day in question it was driven to Berners Street to show to a prospective customer.

Mr. Taylor Parkes (of Messrs. Amery, Parkes and Co.), who defended, submitted that the mere fact of keeping the car did not make the owner liable to pay the tax, that there must be a user also, and that such use as this car was put to was not a user within the meaning of the Inland Revenue Acts. Cases were quoted in support of these arguments, and it was strongly represented that the defendant was not liable.

Mr. Carter, for the L.C.C., argued that there was a user of the car, and that the defendant was liable, notwithstanding the fact that it was only out for the purpose of being shown to a prospective purchaser.

In dismissing the summons, the magistrate stated that he thought the section under which these proceedings were taken should be strictly construed in favour of the taxed person, and that under the circumstances the defendant was not liable for the tax.

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NEW COMPANIES REGISTERED.

Professional Chauffeurs' Club (of G.B. and I.), Ltd.—Capital £2,500 (1,000 £1 5 per cent. cum. participating pref., 2,000 10s. ordinary, and 2,000 5s. deferred).

Renard Commercial Motor Co., Ltd., 82, Victoria Street, Westminster.—Capital £81,250, in 5s. shares (200,000 participating pref.). Under agreement with the Renard Road and Rail Transport Corporation, Ltd., and its liquidator.

Société de Construction des Moteurs Reinhard, Ltd., Walter House, 418–422, Strand, W.C.—Capital £50,000, in 12,475 ordinary shares of £4 each and 500 founders' shares of 4s. each. Objects, to manufacture and deal in Reinhard valveless motors, for which French and British patent rights have been granted. First directors, M. Rousseau, V. Reinhard, and W. S. Rutherford.

ROUNDABOUT NOTES.

Motor Cunarders.

No doubt our readers noticed recently in our columns the registration of a new company, entitled British Business Motors, Ltd., an indication of the firm's future work being apparent from the names of those associated with this undertaking. Mr. H. G. Burford, the managing director, now sends us a few interesting details of the scope of this important combination. With Mr. Burford are associated as co-directors, Mr. S. F. Edge and Mr. H. T. Vane, general manager of S. F. Edge, Ltd. They have acquired the motor manufacturing business previously carried on at Coventry as the Sturmey Motors, Ltd., together with the Lotis works, also the adjoining works recently owned by the Hewer Car Bodies, Ltd.; in addition to these they have secured several acres of land adjacent to the properties, which together with the two factories has been amalgamated under the heading of the above company. The main idea is to build British business motors from one to five tons, to be known as Cunard business motors. At present the existing factories are running on a 20-cwt. vehicle of a character which should be very popular, because there is no gear-change in the ordinary sense of the word. The movements are all positive; no mistake in gear-changing can arise between the teeth of gear-wheels, thus reducing the skill required by the driver to a minimum. Up-to-date works and equipment is the motto of the firm, and new shops to cover the unoccupied land are being proceeded with as rapidly as possible, and it is confidently anticipated that the Cunard will be as well known in motor circles as the name is on the sea. Mr. Burford's unique experience should be of the utmost value to the Company as he can properly lay claim to being the pioneer of the commercial vehicle industry in this country, having introduced commercial vehicles to such users as the Great Western Railway, London & North Western Railway, Great North of Scotland Railway, Great Eastern Railway, Lancashire & Yorkshire Railway, and practically all the leading London omnibus companies. We wish all concerned a supreme success.

FOR the convenience of clients in Lancashire, Cheshire, and district, Messrs. C. A. Vandervell, makers of the well-known C.A.V. car-lighting installation, have established offices and showrooms at 12, Victoria Buildings, St. Mary's Gate, Manchester. The telegraphic address is "Vanteria, Manchester," and the telephone number 5685 City.

THE body of the Hispano Suiza car ("Red Devil") illustrated in our last issue was designed, built and finished at the works of the Grosvenor Carriage Co., Ltd., 366–8, Euston Road.

AN idea of the interest that has been established in the Goodyear integrally webbed steel wheels will be gathered by the fact that one day's mail brings enquiries and business to the Goodyear Motor Wheel Co., Dudley, from India, Africa, Australia, America, and Europe. These wheels were much in evidence on the successful Sunbeam cars at the last Brooklands meeting.

MESSRS. ABERDONIA CARS, LTD., are now settled in their new quarters at Cumberland Avenue, Park Royal, London, N.W., to which all communications should be addressed instead of to Aldine Place, Shepherd's Bush.

THERE is hardly a repair job on the car which cannot be tackled if the owner has installed in the corner of his garage a Drummond lathe. Whether the garage is large or small a Drummond lathe will prove a paying investment. Full particulars as to the various patterns will be readily given by Messrs. Drummond Bros., Ltd., Rydes Hill, Guildford, Surrey.

FOLLOWING the edition in French, the demand from Spain and Portugal has necessitated the Argyll Illustrated Album being translated and printed into those two languages. Copies of either edition can be had from Argylls, Ltd., Alexandria, Dumbartonshire.

MESSRS RILEY (COVENTRY), LTD., City Works, Coventry, have made arrangements for Mr. Charles Stulik to cover the world in a two years' tour in the interest of Riley Detachable wire wheels. His tour includes practically every land where motor cars can run; amongst others, the Central and South American Republics, Australia, New Zealand, Japan, China, India, United States and Canada, and even such out of the way places as Madagascar, Corea, and Mauritius.

RECENTLY the Austin Motor Co. endeavoured to obtain a second-hand 10-h.p. car of their own manufacture, and although application was made to most of their agents the search was futile. Nearly every reply contained a sentence in this strain: "When motorists have got a good thing they mean to hold it." This particular Austin model has been manufactured for nearly two years, and its absence from the second-hand market is evidence that in all cases it is giving satisfaction.

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MESSRS. PHŒNIX MOTORS, LTD., recently submitted one of their cars to Faraday House in order that the efficiency of the chain drive might be tested. The certificate states that when the engine was developing its maximum h.p. 1,250 revs. per minute, the efficiency of transmission was found to be 93 per cent.

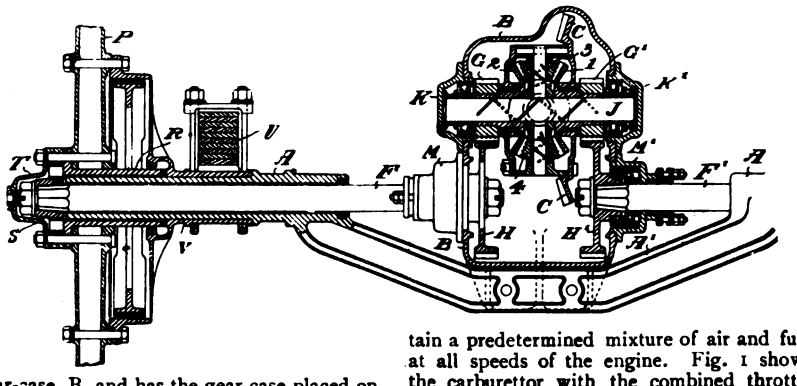
THE prices of Ivel agricultural tractors have had to be advanced a little, but the new machine is a great improvement over its predecessors. The engine is more powerful, developing 24-h.p. when using petrol as fuel, and there are a large number of improvements.

BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

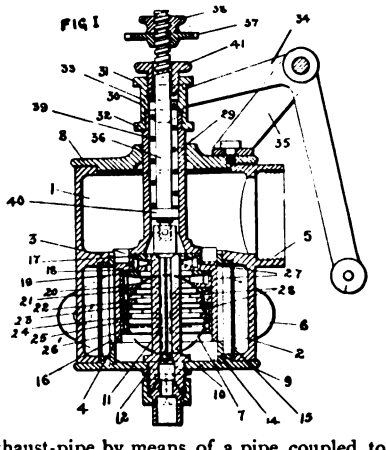
The first date given is the date of application ; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

17,186. July 27th, 1911. Improvements in and relating to Transmission Gear for Motor Vehicles. Allan Fergusson and Henry Spurrier, Junior, both of Leyland Motors, Ltd., Leyland, Lancs.—This invention relates to improvements in transmission gear for driving the road-wheels of motor vehicles, and particularly heavy vehicles. The drawing shows in section part of the dead and live axles, and gear-case and differential gear. The dead axle, A, is formed with a central downwardly-bent part, A^1, which comes under the



gear-case, B, and has the gear-case placed on it and secured to it. The differential driving gear comprises the bevel-toothed members, 1, 2, 3, 4, and the gear is operated in the usual manner from the bevel wheel, C. This bevel wheel, C, is driven from the bevel pinion secured to the end of the propeller-shaft, which is disposed about horizontally and in continuation of the crank-shaft of the engine. The wheels, 1, 2, of the differential gear, which are usually placed on the inner ends of the live axles, F, F^1, are, in the form of gearing, each attached to a spur-pinion, G or G^1. One of these spur-pinions, G, gears with a spur-wheel, H, secured to the inner end of the live axle, F ; the other pinion, G^1, gears with the wheel, H^1, attached to the inner end of the live axle, F^1. The differential gear loosely rotate upon a short shaft, J, directly above and parallel to the live axles. This shaft is mounted in bearings carried by the sides of the gear-case, B. By removing caps, K, K^1, which, when the gear is in use, cover and carry the ends of the shaft, J, and are secured to the case, this common shaft may be withdrawn axially, and the wheels of the differential gear are then free to be withdrawn through the rear end of the gear-casing when the cover-plate closing such end is removed. The live axles, F, F^1, where they pass out of the gear-case, pass through removable caps, M, M^1, which act in conjunction with the wheels, H, H^1, to prevent axial or longitudinal motion outwards of the axles. The live axles pass along and through the ends of the dead axle, and the road-wheels, P, are secured to sleeves, R. The outer end of each such sleeve is provided with projections, which are loosely engaged by means of the arms of a star-wheel, S, rigidly secured to the end of the live axle. T is a cap to cover the end of the live axle, F, secured to the sleeve and road-wheel, P. A spring, U, of the vehicle is shown mounted on or bolted to a sleeve, V.—August 7th, 1912.

17,193. July 27th, 1911. Improvements in Carburettors for Internal Combustion Engines. J. S. White, St. Margaret's, Weybridge.—In this invention the interior of a combined air and throttle-valve is formed with step-rings so as to give a predetermined area around the petrol-valve at all positions of the combined air and throttle-valve, so that the air will thus pass the petrol-valve at a constant velocity and maintain a predetermined mixture of air and fuel at all speeds of the engine. Fig. 1 shows the carburettor with the combined throttle and air-valve and the fuel-supply-valve closed, and the ports, through which air only is drawn into the cylinder whilst running down-hill to scavenge and cool the cylinders commencing to open. The body of the carburettor is divided into two chambers, 1 and 2, by the diaphragm, 3, through which slides the combined air and throttle-valve, 4. The chamber, 1, may be connected to the usual type of air-heater formed around the



exhaust-pipe by means of a pipe coupled to the screwed boss, 5. The chamber, 2, is connected to the induction-passage of the engine by the oval flange, 6, with the passage, 7. To the cover, 9, is fixed the valve-casing, 10, in which the fuel-valve, 11, fitted with the tapered grooves, 12, slides. The grooves, 12, are tapered to give an increasing supply of fuel as the valve is lifted out of its casing, 10. The valve-casing is connected to the supply tank by the union, 13. In the cover, 9, is fixed the liner, 14, which projects into the diaphragm, 3, thus forming a cylindrical partition between the combined air and throttle-valve, 4, and the chamber, 2, in which is fixed a gauze cylinder, 15, through which the mixture has to pass to the passage, 7. The throttle-valve is made a good sliding fit in the liner, 14, the lower end regulates the mixture through the four ports, 16, cut in the walls of the liner, 14. The air and throttle-valve, 4, is fitted with the rings, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, which are bored different diameters so as to give a constant velocity of air past the fuel-valve at all speeds of the engine, and are tapered on their inner sides to form an annular space between each pair of rings of the necessary area to maintain the constant velocity, and are kept apart by lugs, 27. The five pairs of rings are dropped into place, and the bottom one soldered or forced down by a nipple screwed into the piston. The ports, 28, communicate with the interior of the rings, four ports to each pair of wings, and the tops and bottoms of the ports are bevelled outwards so as to only leave a knife edge between the outer edges of the ports, 28, with the object of bringing the next row of ports into communication with the chamber, 1, as soon as the row above are fully open to the chamber, 1. The valve-extension, 29, passes through the cover, 8, and has a square head, 30, with flanges, 31 and 32, between which the end, 33, of the lever, 34, engages. The lever, 34, is fulcrummed to the bracket, 35. The fuel-valve, 11, is coupled to the rod, 36, through the extension, 29, and has a square-threaded screw cut on the upper end on which is screwed the sprocket-wheel, 37, and the lock-nut, 38. The rod, 36, has a spring, 39, sleeved over it and abuts against the collar, 40, formed on the rod, 36, and the spring adjustment screw-cap, 41. This spring, 39, is to keep the valve, 11, on its seat until the sprocket-wheel, 37, strikes against the top of the screw-cap, 41, when the valve is lifted off its seat.—August 7th, 1912.

Patent Specifications Published.

Abbreviations :—cyl. = cylinder ; I.C. = internal combustion ; m = motors.

Applied for in 1911.

Published August 29th, 1912.

17,594. MATHER AND PLATT, LTD., AND A. E. L. CHORLTON. I.C. engine-pumps.
17,808. E. NEWMAN. Guards for road-wheels.
17,810. W. H. WELCH AND HARVEY FROST AND CO. Vulcanisers.
17,901. E. J. CONILL. Rotary explosion-engines.
18,430. J. L., R. AND T. NUTTALL. Pneumatic tyres.
18,628. H. WILKINS. Signalling device.
18,699. L. J. FLINT. Ignition systems.
20,020. J. HOFMANN. Shock-absorbers.
20,207. H. G. AND W. W. LONGFORD AND W. A. CLARK. Ignition-plugs.
21,980. BRISTOL WAGON AND CARRIAGE WORKS CO. AND G. CONDICK. Motor car bodies.
22,172. W. P. WILKINSON. Compressed-air suspension.
23,957. H. L. SLEIGH. Hoods.

Applied for in 1912.

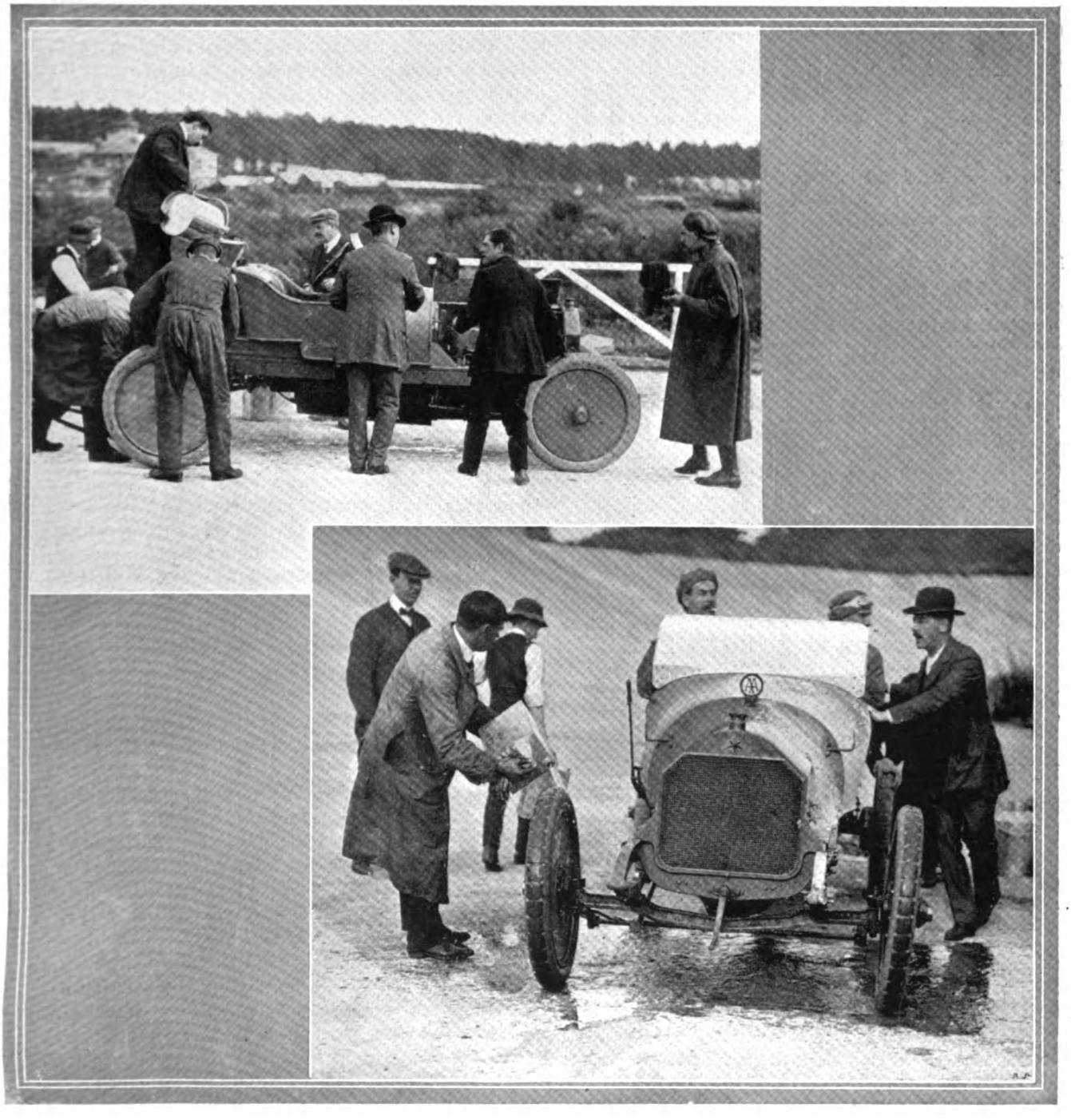
Published August 29th, 1912.

2,106. C. LEBHERZ. Automobiles.
4,350. C. WEDEKIND. Gas Turbines.
5,687. J. I. THORNYCROFT AND CO., LTD., AND R. MACKIE. Spraying devices.
11,308. A. R. ROBERTSON. Friction-clutch.
13,412. FRIED. KRUPP AKT.-GES. Fuel-injecting device for I.C. engines.

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The AUTO
-MOTOR JOURNAL
The Motorist's Journal and Directory.

No. 609. (No. 36, Vol. XVII.) SEPTEMBER 7, 1912. [Weekly, Price 3d. Post Free, 3½d.



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CHANGING TYRES AND REPLENISHING IN THE 12 HOURS' TEST AT BROOKLANDS OF THE STANDARD STAR CAR LAST WEEK.—The top photograph was taken at the end of 6 hours' run (for about 400 miles), showing the back wheels being changed and water, petrol, and oil being taken in, the time occupied for this being 2 mins. 7 secs. Incidentally, Mr. R. Lisle, the driver, is securing a mouthful of refreshment at the same time. Mr. Lisle, senior, is seen in the centre of the picture (in the bowler hat). In the lower photograph, taken at the end of 9 hours' run, the assistants are cooling the tyres with water, and it should be noted that the two front tyres went right through the 12 hours' test in good condition. The car is just away again, with a parting word from Mr. Lisle, senior.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

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Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

Motor Traffic and the Public Health.

It is so usual to find all the offences in the calendar laid at the door of the motor vehicle that it becomes really refreshing to read a whole-hearted tribute such as is paid to motor traffic by an authority like Dr. McCleary, until recently Medical Officer of Health for Hampstead. In his annual report for the past year he refers to the gradual disappearance of the horse from the streets of London, and considers this to be a valuable sanitary reform effected without the intervention of the authorities. "The motor," he says, "is rapidly delivering London from its horse manure, which has for years constituted an intolerable nuisance, especially in hot weather. In Hampstead that improvement has been marked. During the past few years seven large stables which have accommodated some hundreds of horses have been converted to other purposes, to the great advantage of dwellers in the neighbourhood; and many mews-dwellings have been transformed almost beyond recognition. It is time that it should be realised that the presence of the horse in a large modern city is incompatible with cleanly civic life, and any measures that tend to hasten its disappearance should be welcomed by sanitary reformers."

Precisely what we ourselves have been saying for years and years and years! The horse has about lived out its span of life as the "friend of man," and though there are reasons of sentiment which must make us all regret his final disappearance after so many centuries of useful work in the service of mankind, the time is rapidly coming when those who wish to keep him either for sporting purposes or for simple love of him will only be allowed to do so under proper restrictions and conditions as apply to other insanitary animals which constitute a menace to the public health.

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The American "Invasion" Scare.

Our contemporary the *Daily Express* has chosen for its "silly season" topic the invasion of the British market by the American car manufacturer and has been at great pains to demonstrate that unless something is done to counteract the effects of this terrible invasion, the British trade will be "down and out" almost before we have time to look round. So far as we have been able to gather, the scare has been raised principally because the position of the motor trade in this country *vis-à-vis* the American attempt to capture the market, affords a valuable object lesson when the arguments are properly presented of the benefits of a heavy tariff on imported manufactured goods. To our way of thinking, it is not too fortunate an inspiration which has led the *Daily Express* to take up the *rôle* of protector of the down-trodden British motor manufacturer, for the reason that the net result of it all must be to call more and more attention to the cheap American cars which are being imported in increasing numbers and which are all seeking their share of the market. Not that we would advocate any other business policy than that of a fair field and no favour, conditions being what they are, but to us it savours of futility to harp upon our own alleged weakness and the strength of our competitors and, if things are really so serious as the *Express* would have us believe—which we decline to think—then surely the less we publicly say about it the better. In any case, we deprecate the discussion of purely trade matters in the public press, and it seems to us that the *Express* discussion has taken an aspect which is distinctly trade, and trade only. However, that may be simply a matter of opinion, and we are quite willing to concede that we may be wrong in our ideas anent the matter. Right or wrong, the discussion has been opened, and has drawn some notable contributions from leaders of the motor industry, and of these the most noteworthy is that from Mr. W. M. Letts.

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An All-British Combine.

In the course of an article extending to over two columns, Mr. Letts makes some astonishing statements. First, he says that there are dozens of different makes of American cars over here, but out of the whole lot there are only about three American firms doing business in this country in any bulk; the rest are hoping they will get in, but they will not, and one of the American firms which started over here in a large way is now considering the advisability of cutting its business off on the ground that it is losing money. If this matter is going to be discussed to any good end, we must cease from deluding ourselves.

There are certainly more than three concerns handling American cars in this country which are doing good business, and unless the suggestion which Mr. Letts makes later on in his article can be given effect they will stay in. Then, with regard to the American concern which he says is thinking about giving up its British business because it is losing money, he ought to have said that this is not one of the concerns which is marketing a cheap car, but is, on the contrary, attempting to compete with the high-class products of British and Continental factories.

That the Americans have never been able to do since the motor industry came into being, and we do not believe they ever will. The high-class car costs just as much to produce and sell as its sister built on this side of the Atlantic, while it has to encounter the heavy handicap of its nationality. It is easy enough to sell the cheap American car over here, but the trouble with regard to the "class" car is that the British motorist wants a lot of persuasion before he is convinced that any car that is not essentially "cheap" is produced in the United States. Besides, there are quite enough cars of the higher grades turned out on this side to supply the home demand, so that the ambitious American has to fight us under circumstances entirely favourable to ourselves when he tries to sell us the products of his best factories.

Next, Mr. Letts tells his public that the American invasion will not last. In his own words, the two or three firms who are doing the business here are doing a very large one; and, while they are over here, with the business methods of the American, they are going to make the pace very hot. But it will only be a matter of two or three years before the British manufacturer will have the whole of the motor business of this country. This is optimism with a vengeance, and we wish from our hearts that we could see eye to eye with Mr. Letts. In the next breath he asks: How are we to set about the recapture of the cheap-car market? So that the optimism is, after all, of a somewhat qualified kind. The question is answered by the querist himself, who thinks that the only way in which the American invasion can be stemmed is by the constitution of a huge combine of British manufacturers for the purpose of building a cheap car to compete with the imported article on a price-cum-merit basis.

How it is to be done.

Mr. Letts himself points out that, to organise such a combine and set it on a manufacturing basis would take at least eighteen months, by which time it would be too late to oust the American, who would then have a firm grip on the British market. Therefore, he proposes to buy component parts from America, assemble them over here, and call the resultant car the production of the British combine. Not as a permanent idea, though. This assembly business would only be a stop-gap, the while the combine is building and equipping the necessary works for making everything for itself. At the start each individual firm in the combine would state how many of these assembled cars it hoped to sell through its agents, and plans would be made accordingly for the construction of the required number.

On the face of it, the scheme reads like a dream of Utopia, but examination leads to a rather different conclusion. Either the American invasion—we continue to call it by that name because it seems fashionable to do so—is a serious factor with which our own industry has to reckon or it is not. Reading the one part of Mr. Letts' article, we conclude that in his view there is nothing much to worry about, because the Yankee lease of life in this country is limited to two or three years. Farther on, however, we are compelled to revise our opinion, and believe that he regards the position very seriously indeed. If he is right in the latter view—and we for our own part believe that he is—then it behoves the British manufacturer to be up and doing. Then the question arises as to what he shall do to meet the looming competition, and Mr. Letts offers a solution. We have no single firm in this country of sufficient magnitude to compete single-handed with the cheap imported car, and thus we are driven to a study of the possibilities of co-operation or combine—call it what you will—and we confess that the more the idea is studied the more it appeals as the best way out of a serious position. Will anything of the sort come to pass? Can the trade jealousies and suspicions, which are inseparable from the conduct of modern competitive business be overcome to an extent which would make the scheme practical and workable? Mr. Letts thinks that the answer to all these questions is in the affirmative. He sums the whole thing up in this way: "What is wanted is:—

"*Capital.*—This can be found.

"*Brains.*—These we have, for it is an acknowledged fact that the British car to-day is the finest car in the world, and there is a bigger demand now for British cars than there ever has been. Never for one moment do the Americans feel that they are going to compete with us in regard to high-class cars. They cannot do it. Their labour and overhead expenses are more than ours when it comes to a high-priced car which requires skilled labour.

"*Demand.*—Is there a demand? Most assuredly. And will the demand continue? Again I say most certainly. It is one of the businesses which is bound to continue, for it will be just as necessary for the business

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man to have a motor car as it will be for him to have a pair of boots."

It seems to us to be good, sound, logical reasoning, and, as Mr. Letts expresses himself as being willing to place his scheme before the manufacturers for discussion, and, what is even of more practical value, pledges himself that his own firm will enter the combine, it will be a pity if it is not at least argued out pro and con from every conceivable point of view. Along proper lines it is possible to see that the scheme presents all the elements of success, if—and it must be conceded that the "if" is a large and portentous one—the many interests involved can be amicably reconciled and brought into line for the common good. It may be that the difficulties are insurmountable and that the idea, like so many others of equal merit, may come to nought, but we trust that at least it will meet with the serious consideration it deserves. There is much in Mr. Letts' article with which we disagree, but so far as his outline scheme is concerned we think it is a good one and contains many excellent possibilities.

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Tarred Roads and Fish.

A couple of months ago one of the best known fisheries near London—the Colne between Watford and Rickmansworth—was destroyed through the fish being poisoned by the presence of tar products in the water. At once the cry went up that the poisonous matter had drained into the river from the newly tarred roads in the vicinity and the usual stock curses were called down upon the motorist for whose alleged benefit the roads had been tar-treated. However, there has been a different sequel to the story, for it now turns out that the damage was done by the Watford Gas Co., who allowed a quarter of a million gallons of noxious fluid to escape into the river, having been refused permission to pass it through the public sewers.

Comment is almost superfluous. All that need be said is that it is not always safe to assume too much in these cases. We have heard from time to time of the terrible effects of tar on fish and fisheries, but we do not think there have been many cases in which it has been conclusively proved that the drainings from tarred roads have been the prime cause of destruction. More often than not it has subsequently been discovered that the root cause lay in some other direction, as has been conclusively proved in this Watford case.

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The Perils of the Streets.

In a recent circular to the London public service motor companies, the Commissioner of Police calls attention to the number of complaints received from the public as to the reckless driving of certain drivers of public vehicles, and conveys a warning that conviction for dangerous or reckless driving will entail serious consequences, and renewal of drivers' licences may be imperilled. Repeated conviction for exceeding the speed limit will in future be held to constitute evidence of reckless driving. In connection with this circular, a well-known motor jobmaster writes to one of the evening papers in the following strain:

"Scotland Yard never takes the trouble to reduce the number of street accidents by revising old rules, as to cab ranks and stopping-places of trams and omnibuses, and several other things that would reduce accidents by dozens.

"The reason is, I take it, because the police have not any experience of driving and discovering the faults for which they are responsible.

"Scotland Yard should hold an inquiry of drivers, both private and public, and it would learn a lot from them."

There is undoubtedly a good deal of sound common sense in his arguments. The police do their best, and we are only too pleased to record our conviction that they do, but they can only accomplish their duty within their own set limitations. There certainly seems to be a good deal in the contentions set forth in the letter quoted, which go to indicate that where police methods fail is in that they are trying to handle new traffic under old conditions.

An enquiry such as that suggested would in all probability lead to a useful result, but better still would be the appointment of a real Traffic Board, with powers to deal adequately with the whole administration of the ever-growing metropolitan traffic.

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Motoring in Switzerland.

We hear much of the glories of motoring in the country of the cantons, but taking the matter on balance Switzerland would seem to us to be an excellent country for the motorist to avoid. It has long been notorious that the legislation and restrictive regulations relating to motor traffic have been next door to intolerable to the tourist, and the Swiss Automobile Club has been hard at work for years in the endeavour to get some of the more vexatious restrictions removed. The club seems to have achieved a sort of Pyrrhic victory, for it has succeeded in securing some alteration in the laws and regulations; but for the life of us we cannot see that the last case is any better than the first. Indeed, in some cases it is worse.

Take, for example, the road over the St. Gothard Pass from Goeschenen to Andermatt, which is to be open to motor cars between the hours of 6 a.m. to 9 a.m. and from 6 p.m. to 9 p.m. If, however, the motorist should be held up during the non-prohibited hours, he may still take his car over the pass if he cares to have it drawn by horses! From Andermatt to Airolo the road is to be open during the whole day, but closed at night. In the canton of Grisons motor cars are prohibited altogether; in Berne, Unterwalden and Schwyz cars may not run on Sundays; in Glarus the roads are closed to motor traffic on Sundays between 9 a.m. and 6 p.m.

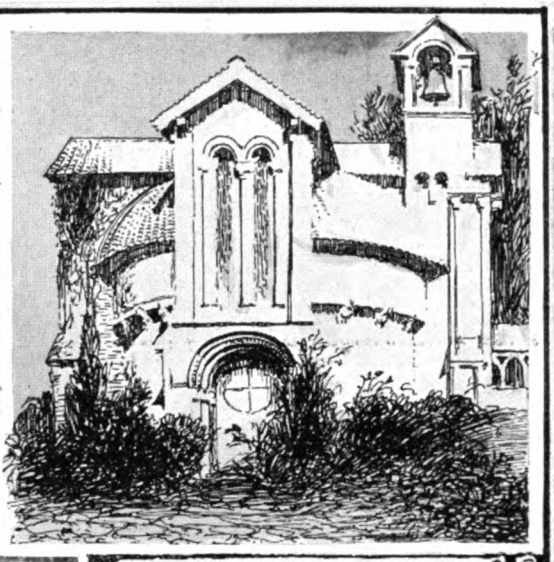
Such instances of the intoleration with which the Swiss authorities still regard motor traffic could be multiplied almost *ad infinitum* if it were worth while. The astonishing thing to us is that so many English motorists still take their cars to this inhospitable country—but there is no accounting for taste.

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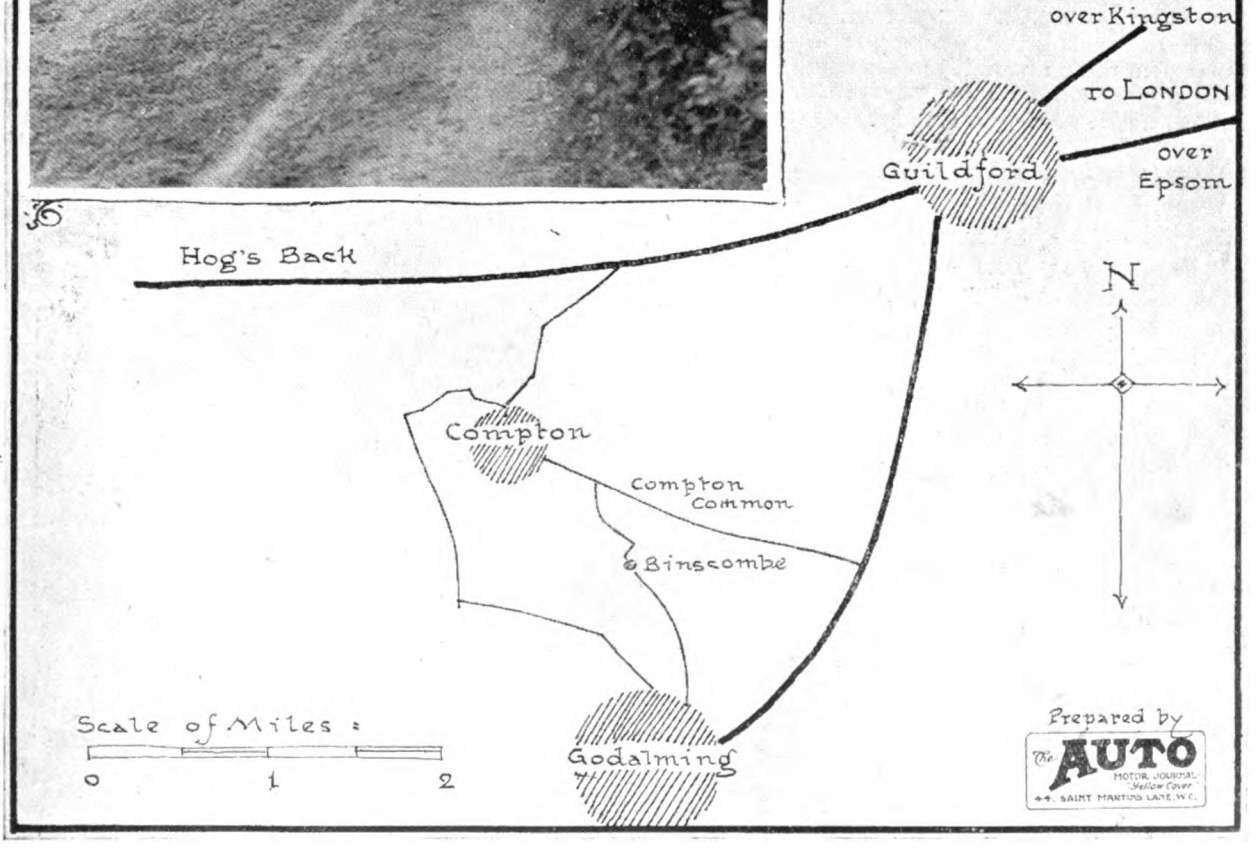
WITH THE CAMERA AND THE CAR.

WITH a METALLURGIQUE AT COMPTON





The terra-cotta chapel to the memory of G·F·WATTS R·A·



At Compton, close to the Hog's Back, a village full of charming Tudor architecture and memories of G. F. Watts, R.A. In our photograph is seen the Watts School of Pottery, and the sketch shows the terra-cotta chapel at Compton designed by Watts. The place is just off the main road, but by way of the cart tracks and by-lanes from Godalming will be found a more interesting route.

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THE STAR BEATS RECORDS AT BROOKLANDS.

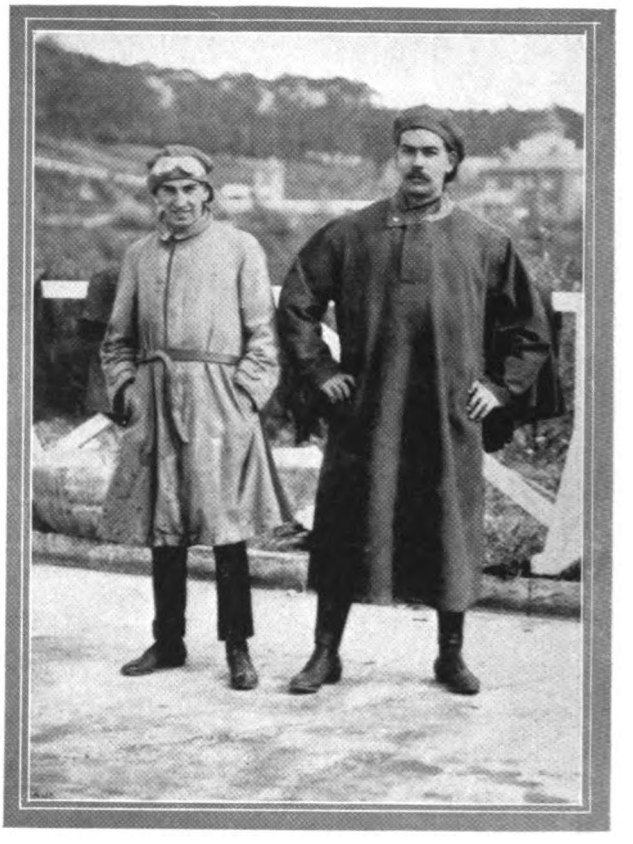
ON one of the two Star cars of 15·9-h.p. (R.A.C. rating), which were disqualified, owing to being "sporting models," from taking part in the recent Standard Car race, Mr. R. Lisle, on Friday of last week, succeeded in beating the record from one to twelve hours at Brooklands. The distances accomplished hour by hour were as follows:—

Hours.	Miles.	Yards.	Hours.	Miles.	Yards.
1	64	1,477	7	467	1,060
2	134	1,569	8	537	211
3	203	372	9	599	97
4	268	513	10	666	1,504
5	336	590	11	734	1,712
6	401	147	12	801	1,513

800 miles were covered in 11h. 58m. 21s., and the average speed worked out to 66¾ m.p.h. Throughout the whole run the engine was not stopped, while the car was only stopped at the end of each three hours for petrol and food and for the changing of the rear tyres. The first stop was of 2 mins. 7 secs. duration, while for the second stop the time was cut down to two minutes. The front tyres went right through the race without change. Incidentally it may be noted that the course for the Standard Car race, *i.e.*, 100 laps, was covered in 4 hrs. 9 mins., or in other words 40 minutes less than the time of the actual winner, while the average speed was 9¼ m.p.h. faster. After making the above records the car was loaded up to 1,000 lbs., and with half-a-dozen extra passengers, including one on the bonnet, without any difficulty the car successfully negotiated the Brooklands Test Hill.

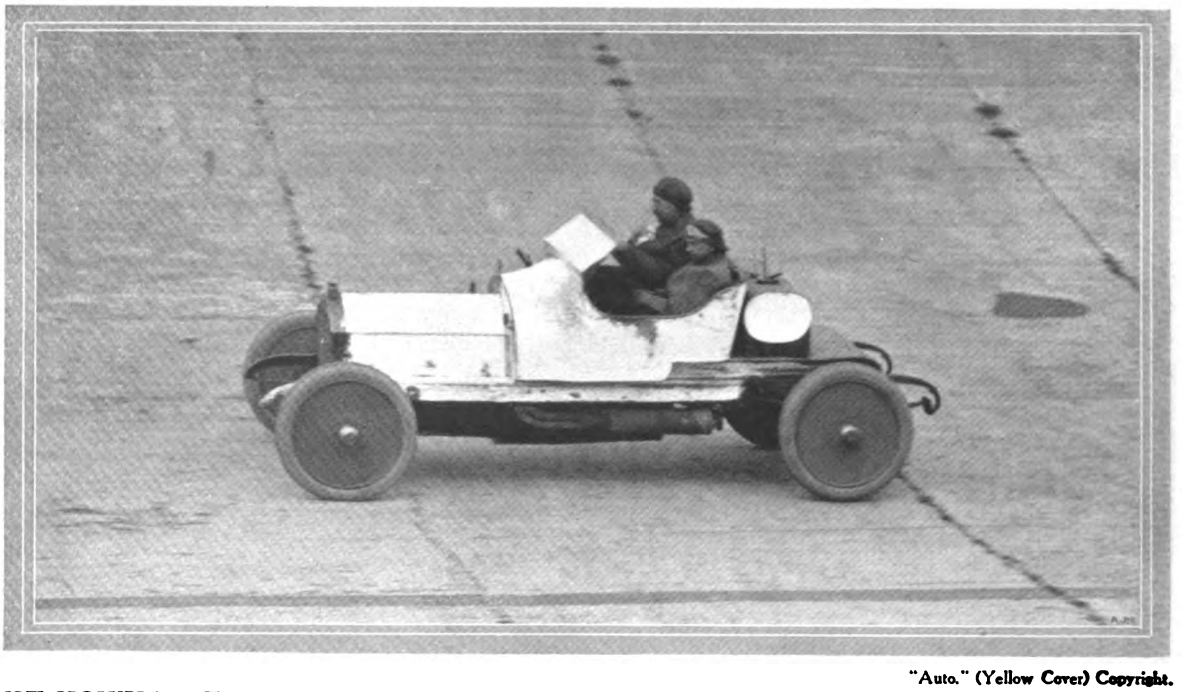
An extraordinary feature of the test, which can be gathered from the above table, was the very even running of the car, and for 62 laps the extreme variation between the lap times was 2 secs.

A second 15·9-h.p. Star car, with Mr. Cathie, the winner of the first Standard Car race last year, at the wheel, also started on the 12-hour run; but after it had been running splendidly for three hours a torque-rod broke, and Mr. Cathie was forced to retire.



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The 12 Hours' Test of the Star standard car at Brooklands.—Mr. R. Lisle, who drove the car, and his passenger, Mr. Bradford.



"Auto." (Yellow Cover) Copyright.

JUST MOVING—AT 68 M.P.H.—A broadside-on photo of the Star standard car travelling round Brooklands last week during its highly successful 12 hours' test (see also frontispiece).

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TO YORK AND BACK IN 24 HOURS.

BEING A RUN WITH THE ESSEX MOTOR CLUB.

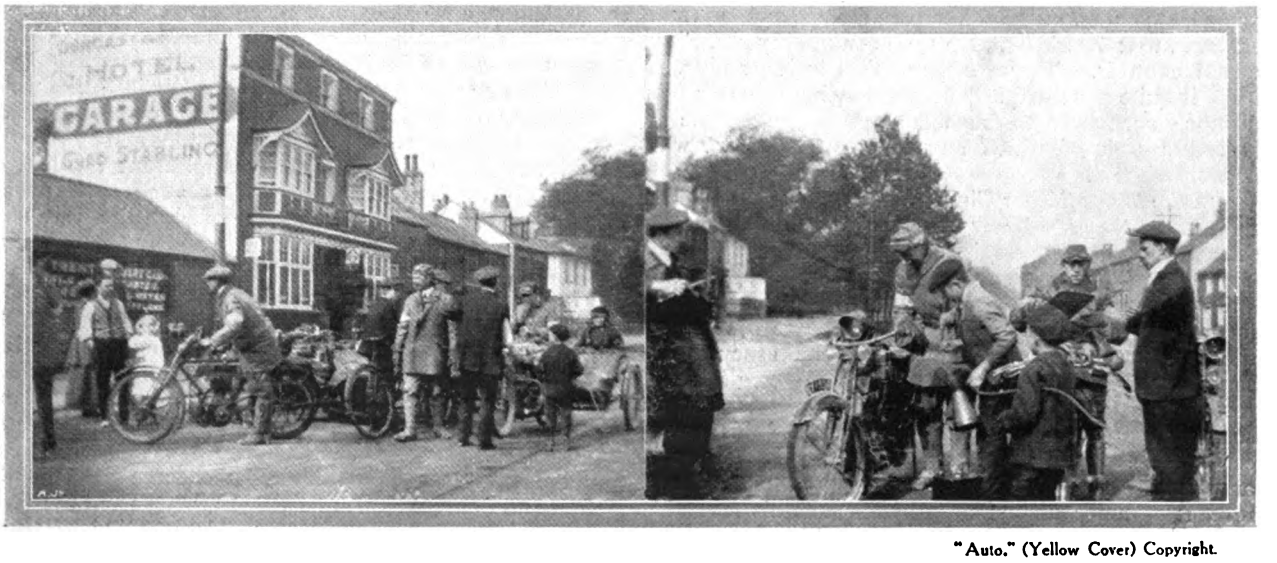
MOTORING TO SCHEDULE TIME AS A FINE ART.

LIKE its recent Brooklands meeting, the Essex Motor Club's 24 hours' run to York and back, which was carried out last Friday and Saturday, August 30th and 31st, was a thumping success from beginning to end. Everything in connection with the affair was as good as it could possibly be; even the clerk of the weather seemed to have reserved one of the few dry corners of his heart for the Essex Club, because, exactly like it was at the race-meeting only four weeks ago, the weather was just glorious, and in a strenuous affair of this kind good weather is something to be really thankful for. The organisation was "top hole," and all the more credit is due to Mr. Fuller and his able assistants because they carried out their work under particularly trying circumstances. The road patrols of the A.A. and many boy scouts greatly assisted the club by stopping out all night at cross-roads and other difficult places. In Redford the boy scouts were particularly active, marking all road-forks by a "man" with a lamp and arrow. One of the official cars unfortunately failed through skidding into a ditch near Huntingdon, so that all the work of checking the riders, &c., had to be done by Mr. Fuller, and, as events proved, he managed it all, and well. However, not even so able a man as he could have succeeded had he not had at his disposal the 16–20-h.p. Benz Sohne car, ably piloted by Mr. Ormonde Darby. To both car and driver the club owes a good deal of the success, because solely through the magnificent and faultless running of the car, in which, by the way, we travelled, and the really fine driving of Mr. Darby, was Mr. Fuller enabled to do all the work that had suddenly fallen upon him through the failure of the second official car.



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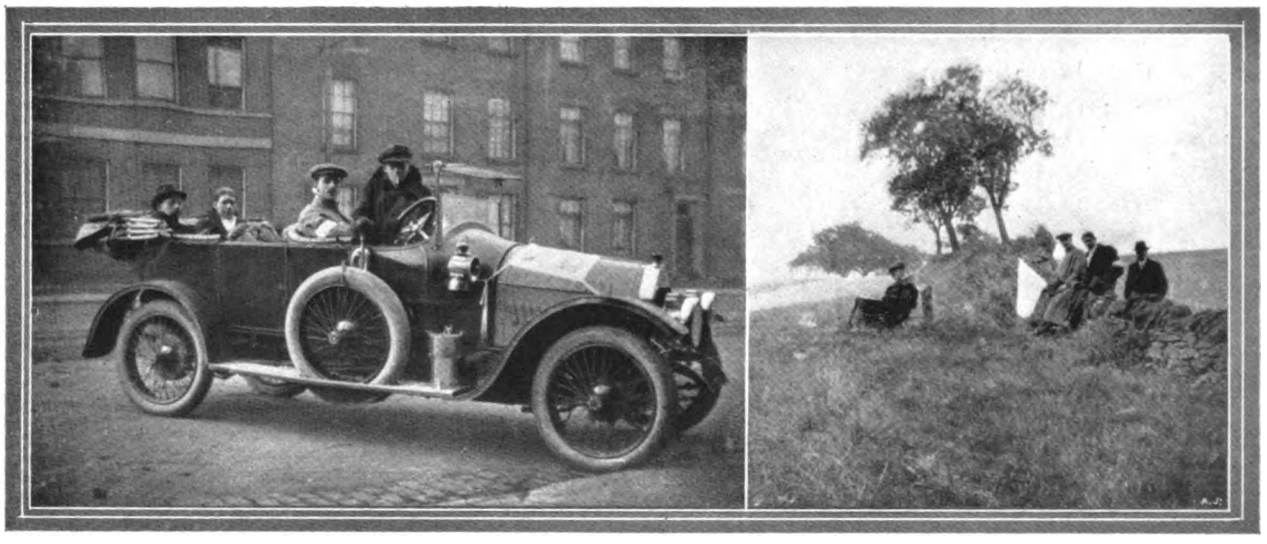
LONDON TO YORK IN 12 HOURS.—The cars in the Eagle Hotel yard, Snaresbrook, ready for the start of the Essex Motor Club run, and, on the right, inside the control at Cambridge at the Old Castle Hotel.



"Auto." (Yellow Cover) Copyright.

LONDON-YORK IN 12 HOURS.—Control at Doncaster, signing in and filling up.

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"Auto." (Yellow Cover) Copyright.

THE LONDON-YORK 12 HOURS' RUN.—The official car, the 16-20-h.p. Benz Sohne, driven by Mr. Ormonde Darby, arriving at York, Mr. Fuller, the Club organiser, being seen next to the driver. On the right, *not* a police trap, but Mr. Fuller in charge of a "secret" control near Stamford.

There were altogether 45 entries, viz., 19 motor cycles, 19 side-car combinations, two cycle cars, and five cars. In spite of the stormy weather and threatening rain-clouds all but three were sent off by the starter. One out of the three non-starters was actually present and ready to go, when his engine failed him at the last moment. In the official programme the event had been described as "Woodford to York and back in 24 hours," which does not say anything as to the character of the run. Hereby, for want of a better word, we should describe it as a reliability trial. The competitors had to travel the 403 miles in 24 hours exactly, and had to arrive at certain controls on the way at specified times. Competitors arriving at the finish in 24 hours with a maximum total error of 10 mins., qualified for a gold medal, and a silver medal is awarded to those with more than 10 mins. but less than 25 mins. total error.

Six indicated and one "secret" control had to be passed each way, out and home, and stops varying from 15 mins. to 1 hour's duration were compulsory at certain of the controls. To travel 403 miles inside 24 hrs. in itself is quite a creditable performance, but to cover this distance accurately to such an exacting schedule is indeed a task of which anyone may be proud who accomplished it.

But the Essex Motor Club's members are men of the right sort; they are hardy and sporting. The way they set about it simply astonished us, and we unreservedly express our admiration to them for their thoroughness. The preparations some of them had made to travel absolutely "dead on" to schedule, at the same time enjoy the run, *and* to account for any emergency, were simply marvellous. To walk through the Eagle Hotel yard and to look over the machines was for us somewhat of an education. One man had his route-card nicely varnished in order to protect it from rain, and carried it on the handle-bar neatly mounted in a reversible frame; immediately underneath this frame his speedometer and chronometer—it would be an insult to simply call this elaborate timepiece a watch—were fixed, and an ordinary bicycle oil lamp was arranged on a special bracket in such a manner that the whole was efficiently illuminated. This competitor told us that he was taking no risks with electric lamps and batteries giving out, &c. Most others had their watches on the wrist, some had the route-card on the generator and carried an electric torch on their belt. But space forbids to enlarge further upon this highly interesting and instructive subject.

As to the run itself its chief characteristic was the almost monotonous regularity of the travelling of nearly all the competitors and we should be not in the least surprised to hear that the club will find itself considerably out of pocket owing to the large number of gold medals that it may have to provide. But every one of them we feel sure is truly deserved. (At the time of writing this the results are not yet known.) The secret control provided rare fun, especially for the party travelling in the official car. There is a certain fascination in stopping lonely travellers in the dead of the night on a stretch of road when they do not imagine anyone within miles. But although we only took their number, nothing else, there was something of the "highwayman-spirit" in us when we assisted in the operation.

Of the 42 who started 39 arrived safely in York, while five more dropped out on the return journey. One of these unfortunately met with what at the time appeared a serious accident, the only really unpleasant incident of the outing. G. L. Fletcher driving a $2\frac{3}{4}$-h.p. Douglas with side-car and passenger, while overtaking a cart near Grantham violently collided with it, and was conveyed to Grantham Hospital, where he was detained suffering from concussion of the brain. His passenger, Mr. Pearson, miraculously escaped unhurt. Another competitor, Mr. J. H. Kerr, riding a $3\frac{1}{2}$-h.p. N.S.U. machine, while endeavouring to avoid a child in Stamford, collided with the curb, which left its mark on the fork of his machine. Mr. A. de Silveria also had a nasty skid that twisted his front wheel and placed him *hors de combat*.

An enormous crowd awaited the competitors at the finish and cheered them heartily as they passed the time-keeper, especially when he was able to call out "dead on," which was meant to indicate that the rider arrived at his exact schedule time.

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The AUTO Motor Journal.

THE AMERICAN INVASION AND TARIFF REFORM.

By A REFORMER.

[ALTHOUGH politically unbiassed, we realise the justice of our contributor's contention that the subject of commercial competition from abroad, whether in respect to motor cars or other goods, cannot be discussed entirely without reference to the fiscal question; wherefore we regard it to be in keeping with our desire to hold the scales of justice fairly poised, that we should open our columns freely to the expression of the more decided, and perhaps more prejudiced, views of individual thinkers. The following, states an interesting case for Tariff Reform, but we shall be equally pleased to publish any contribution that just as sincerely sets forth the opposite side of the question.]

Few readers of the AUTO., probably, have escaped being inveigled into a discussion on the "American Invasion," and many will doubtless have read a very strong letter from Mr. W. M. Letts recently published in the *Daily Express*. The very liberal space afforded by the editor of that paper is, nevertheless, inadequate for the full expression of the opinion of those who, like Mr. Letts and myself, have this matter so much at heart, that I venture to solicit on my own behalf an equal degree of liberty to expand the argument into a more technical field, in the columns of the AUTO., where it will, I feel sure, be read by all who, as practical motorists, can feel a personal, as distinct from a mere secondhand, interest in the matter. And it is very important that the subject should meet with this personal attention, because it is of uncommonly far-reaching effect. The automobile industry may be only a small fraction of the world's work, but its peculiar position renders it susceptible to influences that take longer to reach other departments of industry, for which reason those who are not even motorists may well consider its present position as something of a modern lesson in practical politics. It is to be regretted, truly, that the subject involves a political aspect, because politics are so apt to cloud the vision through a haze of party feeling. Let me, therefore, at the outset make it very clear to all, that when I say politics I refer only to the fiscal state of the community and its inseparable influence on commerce, both as affecting the opportunity for meeting a demand, and as affecting the extent of the financial support likely to be forthcoming in consequence.

In a problem of the magnitude of the British automobile industry, it is impossible wholly to exclude either politics, finance, or engineering from a discussion that is directed, perhaps, solely to one phase of the situation, without seriously warping the aspect that is presented to the mental view. Thus, for example, the financial support at the back of the American industry is unquestionably influenced by that country's political outlook, in which the presence of a 45 per cent. duty standing as a protecting wall around the whole coast-line, and the absence of any such barricade around a number of other markets, notably the British, are the most prominent landmarks. Without the necessary capital, it is impossible to manufacture on the American scale, and without the elastic boundary represented by the absence of tariff in certain other countries it would be absurd for them to do so. This extensible boundary to the effective market is a predominating factor in the situation, when the industry has reached the magnitude that it has in America to-day; but, initially, the protective wall of the American tariff served the same purpose while the American industry was growing large enough to outspan its own enclosure. Because the American motor industry is so large, the freedom to export elsewhere has become an essential factor in the successful maintenance of the situation. But it does not follow that the home market alone is insufficient to warrant the manufacture of a reasonably cheap car on a reasonably profitable basis.

The question of quantity production is apt to give rise to misleading answers, when no attention is given to any other point save the absolute magnitude of the turnover. There is, however, a relative value in these things which, properly understood and scientifically applied, stands in very good stead against mammoth proportions. In a word, there is no *a priori* reason why the English market, notwithstanding its small size, should fail to be sufficient to maintain a profitable industry in cheap British-built cars. Fundamentally, quantity is, of course, the high road to reduced cost, but with scientific co-operation, such as Mr. Letts suggests, the quantity factor could still be introduced into the equation, while the individual turnover of small firms remained much what it is, for the time being. Even in America, the necessity for co-operation is present, because, no matter how large a firm may be, the combined efforts of a group can always put it in the shade.

Before it is even possible to get down to the main question at issue, it is necessary to negotiate a few of the outlying dykes and hills that surround the British automobile industry. For instance, while the fashion for new models at each November Show continues, manufacturers in this country will be under the painful necessity of adapting their supply to the demand within an arbitrary period. It would be already something, if this obstacle to commerce were removed, but, in so far as it has proved a wonderful inspiration to progress, it is a bold man who will say that such stimulus is no longer desirable.

Then there is the technical problem presented by the typical small car, in respect to which British manufacturers, it seems to me, are likely to be presented with the opportunity of making a singularly startling *volte face* when they come to agree, if they do agree, to try Mr. Letts' suggestion for co-operative production. Those who have watched British design can scarcely have ignored the outstanding fact that the British automobile engineer prides himself on making a very small engine that produces a very great deal of power, for its size. In the abstract, the theoretical advantage of the power-giving revolutions that weigh nothing and cost nothing are undeniable. In the practical fields of specialised accomplishment, which result in the winning of races and hill-climbs that are based on arbitrary class distinctions, there is an equal merit in the engine that can double its virtual cylinder capacity by turning twice as fast.

But when it comes to the question of making a cheap, quiet, small car, to be turned out by the thousand, you find that the Americans pay small regard to the niceties of design that have been evolved on this side of the Atlantic through the influence of a D2 rating formula.

Most of the American engines on the cheap cars have a large bore, as we now reckon dimensions, and they tend to run quietly, mainly, it seems to me, because they

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are very seldom stressed to their limits of either speed or power. The chassis, as a whole, is generally built rather light, and the gear ratio is low more often than high. The result is a machine that tends sometimes to offend the eye of the critical engineer who has the European standard, and particularly the British standard, in mind; but the result is also a machine that does a wonderful lot of good service on our curly English roads, where the sense of rapid acceleration is of more consequence than the actual ability to go very fast.

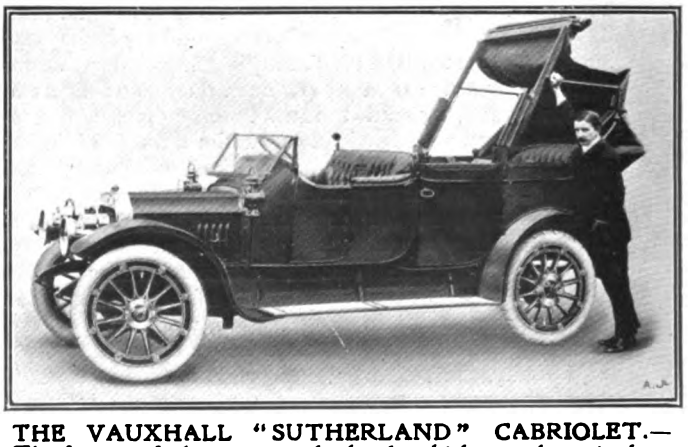
At any rate, whatever may be said against the American cars, the fact remains that their popularity is by no means so insignificant as to suggest that they will very shortly die a natural death through sheer inability to command attention. On the contrary, there is such a marked difference between the average prices of the American car and the average price of an equally serviceable British-made article, that human nature would not be what it is if it failed to be often tempted or did otherwise than often fall. Indeed, there is a great deal of common sense in the view taken by some people on this political question of Tariff Reform, when they say that the only possible way of getting a tariff is to encourage the sale of the imported article until the plight of the British manufacturer is sufficiently obvious to make some sort of protective move necessary on the part of the powers that be.

The principle of Free Trade is to give the community the benefit of the best the world produces, and equal opportunity of buying their choice at a fair price. It is a high ideal, which would work very well if commerce were regulated by any other consideration than supply and demand; but so long as this is the ruling factor in commerce, then must the situation be determined by the chief interest of the purchaser, and the ideals of Free Trade go equally by the board, whether the human race is for the time being concerned solely with getting the most it can for its money, or solely with supporting home industry out of patriotism. In other words, Free Trade is only compatible with the sale of goods by an official price-list that is unaffected by the demand; which is to say, that the ideals of Free Trade are only realised when the opportunity for supply is under proper protection.

Thus, with motor cars, the ideal Free Trade gives the English motorist the chance of buying a British-made car at a fair price, and an American car at a fair price, and a French car at a fair price, and so on. In actual fact, however, the modern fiscal policy under which we labour, and which goes by the name of Free Trade, does nothing of the sort. It gives those very enterprising people—the Americans—who understand the principles of engineering quantity-production as they are understood by few people in the world, an opportunity of applying this business hobby of theirs to the manufacture of motor cars in phenomenal numbers. The effect of this is automatically to reduce the price per unit, and the effect of this reduction in price on the human susceptibilities is to create a preferential market for the cheaper goods. Thus, the American car, being cheap, sells readily in England, and the English car, being less cheap, ceases to sell as readily as it did. It tends, if anything, to become more costly.

In this way, the principles of Free Trade are rendered abortive in practice, because the equality of opportunity for obtaining the pick of the world's produce at a fair price is disturbed at the very outset by the interconnection between supply, demand, and cost of production, which lies at the root of all commercial enterprise, yet is utterly ignored by the practice of so-called Free Trade on modern lines. In one sense, therefore, it is not so much a question as to whether we can build small cars in England profitably at the price at which the American cars already are sold here, as whether the price of the American car is a reasonable and just figure to be obtained for the produce of a motor car factory. Of course, the American car industry in the section under review has had such a start, and has been organised to such large dimensions, that even the British market is only a small section of the whole. For this reason, therefore, the American prices now ruling must presumably remain as a standard of accomplishment for any combine such as is suggested by Mr. Letts.

It is just as well, too, perhaps, that the standard should be sufficiently remote to make people think seriously, because if Mr. Letts' argument does nothing else, it may direct some useful attention to the advisability of encouraging the supply of components, which has not been developed to any considerable extent in England. It is very evident that the complete building of a motor car in a small factory is an extravagant operation, and only justifiable where the style of the product involves considerable hand labour, which can be charged for accordingly. It is probable that the very best work in engineering will always involve a fair amount of personal supervision on each individual article, whereas, on the contrary, it is very certain that quantity-production and cheap manufacture are essentially based on the principle of eliminating the personal element. In so far, therefore, as the factory is concerned with the turning out of cheap cars in quantity, it would do far better to buy its engines and its gear-boxes and its back-axles from other firms that specialise in them, and to specialise itself in their assembly as a working whole. By the same reasoning, those very firms that specialise in engines and in gear-boxes and in back-axles would do very much better to buy their cylinder castings and their rough parts from foundries and the like where the metallurgy of such components forms an everyday and an all-day study. Such co-operation seems to me to be the proper way of co-ordinating intelligence, and if Mr. Letts' suggestion is the means of beginning a move towards that end, it should receive from all motorists the very heartiest support.



THE VAUXHALL "SUTHERLAND" CABRIOLET.—The feature of this car is the hood, which can be raised or lowered from the outside with one hand in five seconds. Either up or down, the hood is prevented from rattling by the provision of springs by which it is held in tension. As a closed car it differs in no respect from an ordinary high-class cabriolet.

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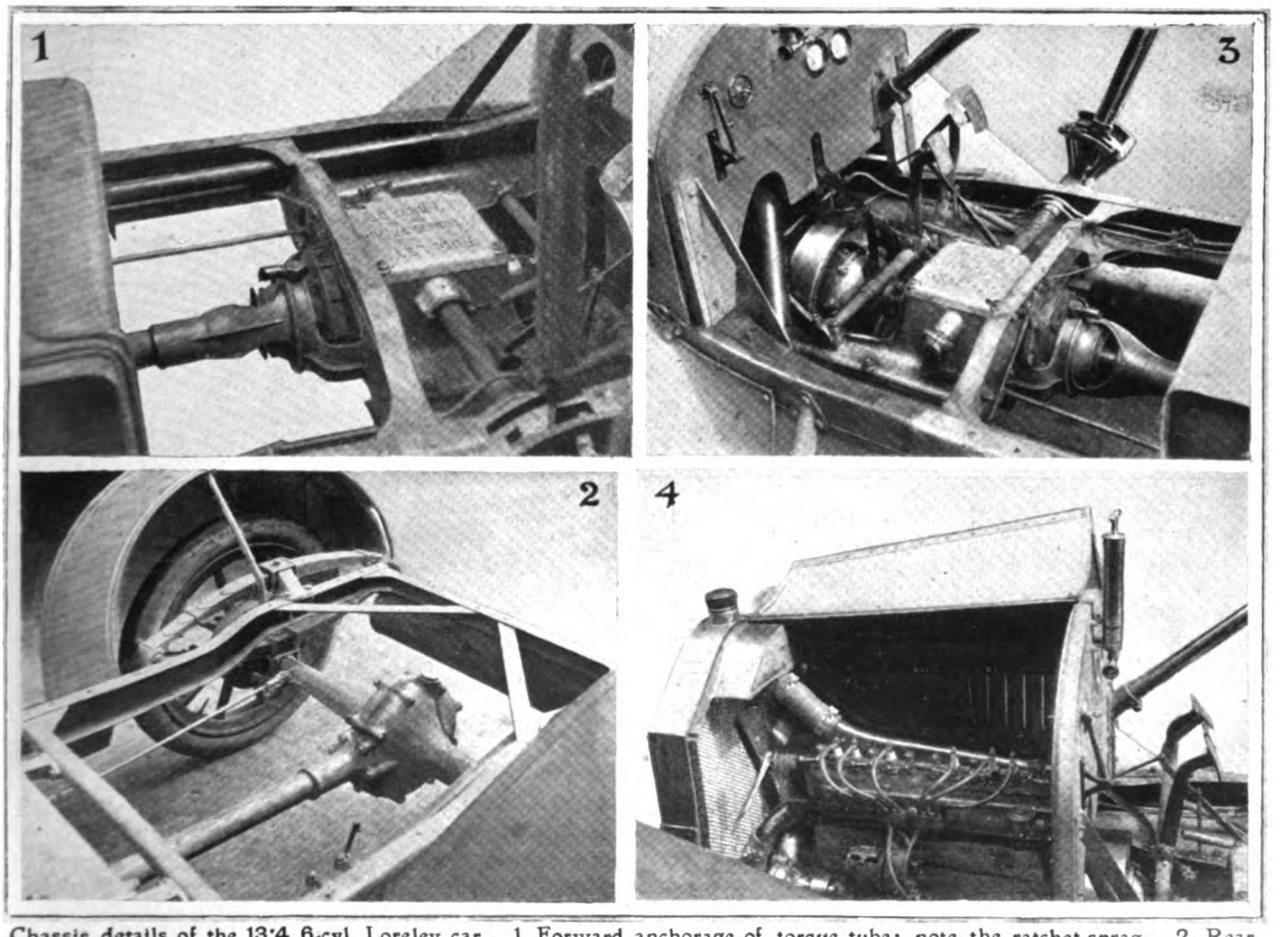
THE 13·4-H.P. LORELEY CAR.

A WELL-BUILT POPULAR CAR WITH 6-CYL. MONOBLOC ENGINE OF 60 MM. BORE BY 92 MM. STROKE, AND *DESAXÉ* CRANK-SHAFT.

VERY few people inside or outside the motor industry are prepared to deny that the motorist who is willing to pay a medium price for a car of medium power is, and for a good many years will continue to be, the principal support of the section of the industry that mainly concerns itself with the production of pleasure vehicles. If we take this as a fact, and ask ourselves what individual manufacturers are doing to supply this type of purchaser, we find that although every maker has something to offer, the choice of the buyer, as a rule, is limited to one, or at the most, two models of any one make, both of which are said to be just the thing he is looking for. This may be so within certain limitations, but when the client asks what these chassis contain in the way of those things that usually are called luxuries, and for which the motorist who can afford to buy a high-powered and expensive car is mostly envied by his more modest brethren, generally he is told that a special body could be built, at an extra charge, of course, in which any personal wishes of the motorist could be considered. But are luxuries in a motor car solely confined to the bodywork? No, the thing that more than any other fitting impresses on even an otherwise indifferent vehicle the stamp of luxury is the provision of a 6-cyl. engine. We will not here enlarge on the undoubted superiority of the type, suffice it to say that it is the *model de luxe* of the very best firms, and as



Loreley touring car ready for the road.



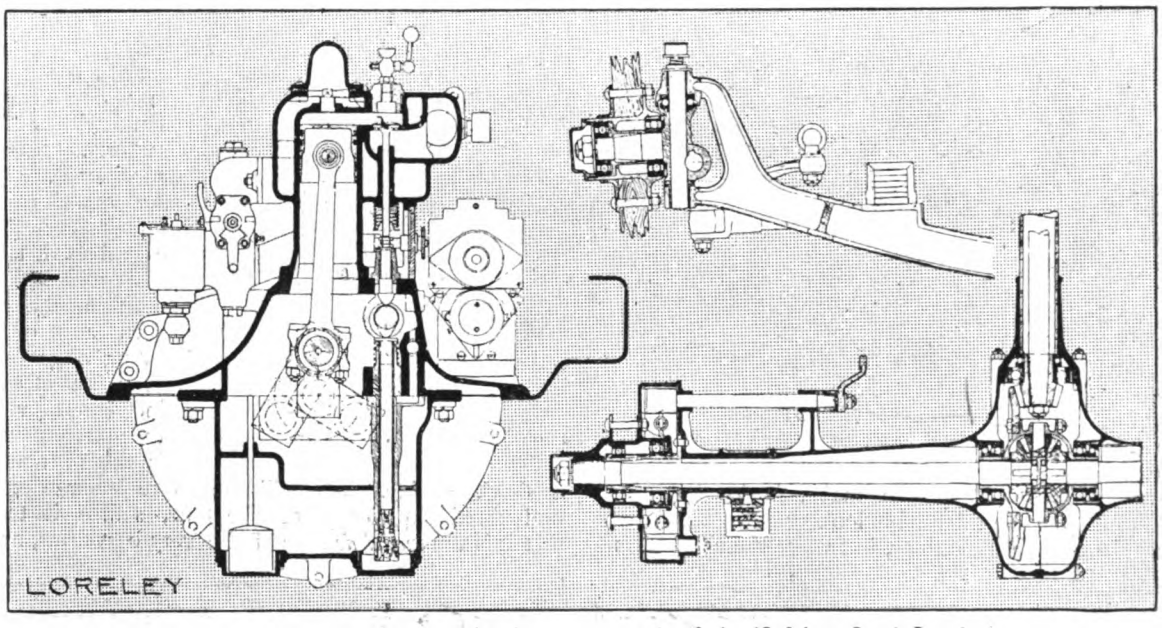
Chassis details of the 13·4 6-cyl. Loreley car. 1. Forward anchorage of torque tube; note the ratchet-sprag. 2. Rear axle and full elliptic rear spring. 3. Centre of chassis; a pulley for the speedometer drive can be seen on the right. 4. Engine, exhaust side.

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such represents a standard of excellence not to be denied. For this reason, if for no other, a very particular interest centres in the 13·4-h.p. 6-cyl. Loreley, which is sold complete as a four-seater for under £300.

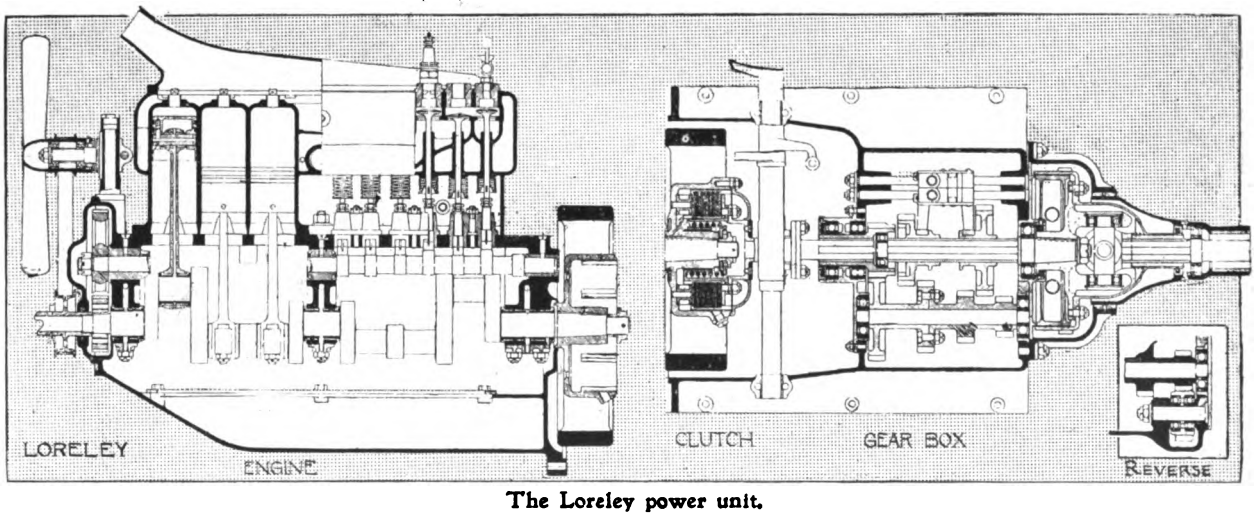
Before dealing more explicitly with this chassis, let us say that the Loreley Autocar Company, Ltd., of 386, Euston Road, London, N.W., are the sole concessionaires in Great Britain for the German-made Loreley cars. They offer a remarkable range of models, and the motorist who requires a medium powered car at a moderate figure and does not find it amongst the four types of chassis marketed by this firm is indeed hard to please. There are two 4-cyl. cars, a 12–14-h.p. with an engine of 70 × 102 mm. and a 15-h.p. with a bore and stroke of 76 × 115 mm., while the engine dimensions of the two 6-cyl. models are 60 × 92 mm. and 70 × 113 mm. respectively. The former is rated by the makers at 12–14-h.p., while the power of the latter is given as 18–22-h.p.

Although this article chiefly deals with the smaller of the 6-cyl. models, especially as far as actual performance on the road is concerned, the description of the chassis itself may be taken to apply equally to all four models. The only difference consists in the number and size of their cylinders, and in size generally according to the power developed by their engines. Especially the block-casting of the cylinders, even in the 6-cyl. models, and the unit system of construction are features common to all four models. All of them are of remarkably clean design and are in every way well-built vehicles, likely to give pleasure and satisfaction for a number of years.



Sections through engine, steering head, and rear axle of the 13·4-h.p. 6-cyl. Loreley car.

Our choice fell on the small 6-cyl., but as to its usefulness we expressed the thought, which undoubtedly is by this time in the minds of many of our readers, that an engine of but 60 mm. bore by 92 mm. stroke could be little more than a toy. But Mr. Hotopf, the genial manager of the firm, simply told us to go and play with it for a few days, an offer which we promptly accepted, and which, be it said, very quickly changed our idea of the usefulness of the chassis generally, and of the capabilities of the engine in particular. Indeed, our journey on the car, which we drove during a week-end over



The Loreley power unit.

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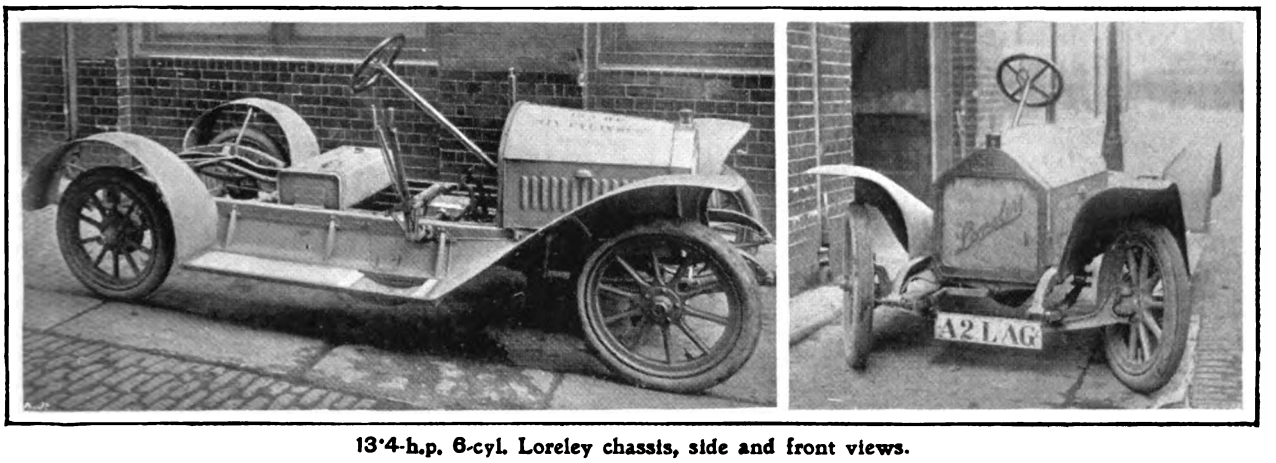
275 miles, was a succession of agreeable surprises, and whenever we put it to a special test the car went through with flying colours.

Although Loreley cars are fitted with three-speed boxes, we cannot find any fault with them on this score, since the gear ratios seem to be very happily chosen. The second gear, especially, is higher than on most three-speeded cars of similar power, so that the drop when changing down from the direct top gear is not so considerable. This induces the driver to change early with beneficial results to engine, chassis, and the owner's pocket. Indeed, it seems that while the average three-speed gear-box can be compared to a four-speed box with the third gear missing, in the Loreley gear-boxes it seems to be the second speed that has been left out. It is astonishing, indeed, what this little six-cylinder engine, which on the direct drive is geared 5 : 1, can do in the way of hill-climbing *and* speed on the flat.

For purely technical details we refer to the illustrations and drawings which accompany this article, and which show, better than words can describe, the straightforwardness, simplicity, and accessibility of the design; materials and workmanship are above reproach, especially when the price of the chassis—£260—is taken into consideration. It should be noted that for this sum the chassis is supplied as shown in our illustration on the left, *i.e.*, including 70 × 90 mm. square tread tyres, rear and front mudguards, aluminium covered running boards, and a liberal outfit of tools and spares. As can be gathered from the sectional drawings, the design of the engine follows conventional lines. The base chamber casting is extended rearwards and joins the gear-box casting, which has been brought forward and is bolted to the former. The advantages of this unit construction are too well known to be enumerated here. The crank-shaft is off-set and runs in three large sized white metal-lined bronze bearings, which are held in the upper half of the crank-case. The lower part of the latter serves as an oil sump and lubrication is effected in a thorough manner. An oil pump forces the lubricant into the three main bearings, whence it reaches the big ends through oil ways in the crank-shaft; even the gudgeon-pins are lubricated under pressure through the connecting rods. Before returning to the sump the oil has to pass through a large filter.

Incidentally we may draw attention to a very neat constructional detail, the fastening of the gudgeon-pins, which is effected very easily and simply by means of a spring-loaded plunger working in a guide on the inside of the piston, and holding the pin by snapping into a slot provided for the purpose. Natural water circulation has been relied upon for the cooling of the engine, and is very efficient. The fan, which is driven by a flat belt from a pulley on the crank-shaft, is adjustably mounted on a pillar, and runs on a pair of well-spaced ball-bearings. All valves are on the near-side; they are provided with adjustable tappets, and boxed in by a large aluminium cover-plate. The cam-shaft is gear-driven. A Bosch H.T. magneto, with hand-regulated variable firing point, provides current for the ignition, while a "Marvel" carburettor is the standard fitting for the supply of explosive mixture. Here we should like to say that the car which we used during our test-run had an S.U. carburettor fitted as an experiment, and it is said that some of the credit for the exceptionally fine running of this particular car may be due to this fact. The fuel is carried in a tank of about 10 gallons capacity placed under the seat, and exhaust pressure is used to ensure a continuous flow even on steep gradients.

While the design of the engine is less remarkable than its performance, it must be said of the transmission that it is one of the best planned that it has ever been our good fortune to criticise. We should commend our critical readers a study of the drawing of the clutch and gear-box, especially the latter, and note the number and sizes of the ball-bearings used in the construction. The clutch, for instance, has no spigot bearing in the ordinary sense of the word, but is carried bodily on an extension of the crank-shaft, so that alignment is easily maintained. The bearing of the reverse pinion, which is shown in the inset, is a typical example of German thoroughness. A suggestion of the writer contained in a critical article in the AUTO. of January 13th, 1912, where we indicated this bearing as a frequent source of loss of lubricant and advocated its being capped as a prevention, has been carried out in this instance. Ball-bearings are also fitted to the pins of the universal joint, and in addition, a ball-bearing is provided for steadying the propeller shaft inside the torque tube.



13·4-h.p. 6-cyl. Loreley chassis, side and front views.

As already mentioned, three forward speeds and a reverse are contained in the gear-box, and the gate system is used for changing.

A fair idea of the design and construction of the rear axle can be gathered from the photographs and the sectional drawing. Here, again, ball-bearings and thrust washers of ample proportions are used everywhere, and

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the spacing of the rear wheel bearings, to our mind, is particularly good. The final drive is by bevel gearing.

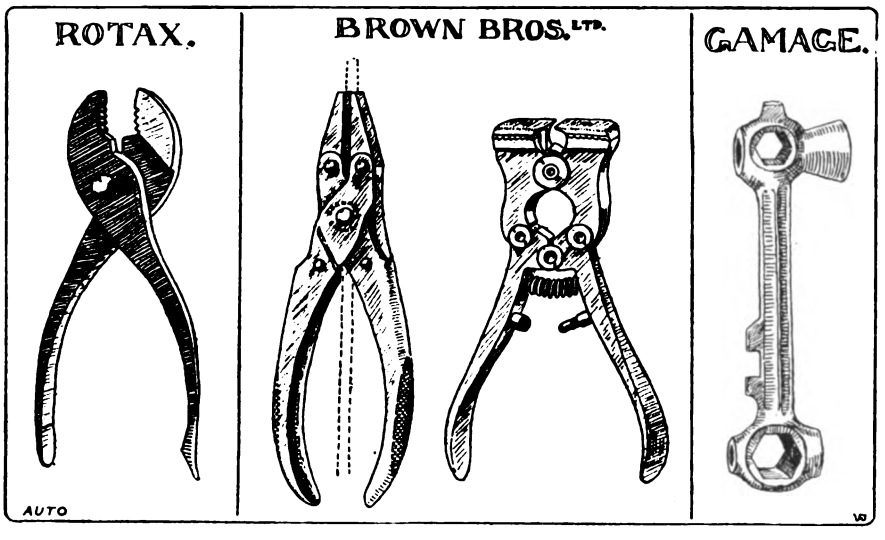
There are the usual two sets of brakes, the foot-brake acting on a drum behind the gear-box, while the side-lever works the shoes contained in the rear-wheel drums in the orthodox manner. Both brakes are provided with accessible hand-adjustments, and combine progressive action with a firm grip, so that it is possible to pull up sharp without appreciable shock. Full elliptic springs with scroll ends behind form the suspension of the rear-axle, while a pair of semi-elliptic springs does duty in front.

Of the many little details that make for comfort, as well as for safety and convenience, let us mention the sprag, which works on a ratchet on the foot-brake drum. A pulley for driving a speedometer is a standard fitting on the forward end of the propeller-shaft, and can be seen in our pictures; to the man who looks after the car, be he the owner or paid driver, the method of ascertaining the oil level in the sump should appeal most strongly. A float in the sump actuates a pointer right in the centre of the filler opening. There is no groping for overflow cocks or dipper gauges, you simply pour the oil in, watch the pointer rise, and stop when it is level with the top of the filter.

In the introduction to this article we have classed the Loreley cars as medium priced, which, as the exact figure is £285 for a two-seater, and £297 10*s*. for a four-seater torpedo, can hardly be regarded as other than a very reasonable assertion.

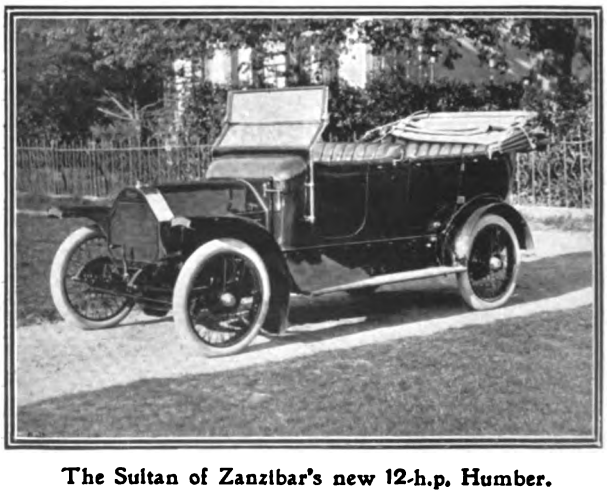
ACCESSORIES OF THE WEEK.

THERE is a great fascination about almost any sort of tool, but more so about a pair of pliers than, perhaps, anything else, for with a pair of good pliers one can always make some sort of headway with a repair. A tool-box without at least three pairs of pliers, for use in emergency, is not complete, but the enthusiast for a full kit will buy many more. Here are three kinds that are invariably useful; one has parallel jaws, another a variable opening, and the third an immense power for cutting wire. These latter work on a sort of reducing gear leverage, which can best be understood by studying the sketch. The great point about this particular tool, however, is that the tips of the jaws are each provided with teeth, which mesh with similar teeth on the intermediate jaws or levers. By this means either tip can be moved back and forth a distance to quite a quarter of an inch. Owing to the great leverage exerted, the cutters ought to be up to dealing with copper, brass, or soft steel, almost to the width of the full opening. The reader, doubtless, will note that the idea of moving the jaws outwards to grip large objects, is to ensure that the handles never get so far apart as to become difficult to grasp and compress. Both these tools are sold by Messrs. Brown Brothers, of Great Eastern Street, E.C.



AMONG the goods sold by the Rotax Motor Accessories Co., Ltd., of Great Eastern Street, are the little adjustable spanner pliers, illustrated on the left of the tools just mentioned. The pin on which the upper member of this tool (in the illustration) pivots is flatted off on either side, so that when this member is moved round to a right angle with the other, it may be moved from the position shown to one giving a greater opening, the pin being slid along the slot shown. These pliers are particularly useful for undoing battery terminals and unexposed nuts, and for general work in the garage are among the most useful tools we know.

FOR cyclists, motor cyclists, and owners of small cars, we publish a sketch of a combination tool sold by Gamage's, of Holborn, which should be worth while when cotters, pins, and small hexagon nuts have to be frequently fitted, adjusted, and removed. This article fits about seven or eight different sizes of nut, and is provided with a large hammer-head, and a screw-driver. The two projections to the left of the centre handle will be found available for unscrewing the caps of petrol tins. All this compendium of concentrated usefulness is priced retail in Gamage's catalogue at 10*d*.



The Sultan of Zanzibar's new 12-h.p. Humber.

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MOTOR CYCLE MUSINGS.

By VICTOR HART.

The Tyre Trials.

THE issue of the judge's report and awards in connection with the Tyre Trials—which were conducted concurrently with the Six Days' Machine Trials at Taunton—removes the bar against commenting upon this important contest. I claim the sole credit for originating this tyre trial, and in the face of opposition from various quarters, my project has realised the success of which I was assured when first formulated in 1910. The objections brought against the scheme were that tyre makers had not sufficient faith in their own productions to risk chances in a supervised trial, and that rival companies, however good their wares, would be afraid of comparisons under identical road and weather conditions. These arguments were disproved by the entry of thirty sets of tyres from seven manufacturing companies, a very satisfactory showing as an initial effort, for it must not be forgotten that this is the first occasion on which tyres have been officially tested against each other, either upon motor cycles or motor cars, in the history of automobilism.

The Palmer Tyre Co., Ltd., can be heartily congratulated upon the achievement of well-deserved success in being placed foremost for the set of 3-inch Palmer cord ribbed tread covers and the Palmer tubes fitted to Mr. F. Smith's Clyno side-car. I examined these covers immediately after their inspection by the judge, and after going round each cover, inch by inch, it hardly seems creditable that they had traversed 1,000 miles over some of the worst-surfaced roads in England. In his report, the judge's remarks upon these covers states, as regards the back driving wheel: "Wear in ribs very slight, the only visible signs of the cover having been used being a few very small cuts in beads of ribs; tubes in excellent condition; slight mud and damp from valve and security bolt-holes." As regards front wheel and side-car wheel, the judge reports "no visible sign of any wear." The mention of "cuts in bead of ribs" means, that where the angles of the longitudinal ribs met the tread of the driving-wheel tyre, tiny cuts could be seen upon close examination; and such cuts were undoubtedly caused by pieces of razor-edged flints (off the north Devon roads) being wedged into the grooves between the ribs by the wet earth beloved by Devonshire road menders for binding the road-surfacing materials. My own puncture experiences during the six days, together with puncture troubles on other machines driven by competitors proved that small flints were the causes; and that none of these did more than create superficial cuts on one only of the three Palmer covers testifies to the splendid quality of the rubber and ample thickness to withstand penetration. Two other sets of similar tyres that had steel studs for the back-wheel covers, instead of rubber ribs, received almost equal commendation.

Wrong Principle Adopted for Tyre Awards.

The second place in the list—without any prize—was credited to a set of Hutchinson 26-in. by 2¼-in. rubber-studded tyres fitted to a solo machine, the back cover being a "passenger-type." Now, this placing in order of merit, as regards individual sets of tyres—viz., first and second—with no awards to the remaining twenty-seven sets which completed the distance, was a huge mistake, for which the new competitions committee of the A.C.U. is responsible. The old committee, in office up to March this year, thrashed out practically all the rules governing the machine trial, together with those for the tyre trial. It was intended that the tyre tests should follow similar lines to those which had proved successful for machines in the nine preceding years, *i.e.*, creating a high standard of maximum marks for gold medals, with lower maximums for silver medals and bronze medals, respectively. This is far more satisfactory, both to entrants and the public, because such division into classes of merit does not severely discriminate between tyres of practically equal merit, which, in the 1912 scheme, are arbitrarily separated into one very good, one good and 27 unplaced. The judge had no option and says so in pretty plain language in his report. With but two exceptions the new A.C.U. competitions committee is composed of gentlemen who have had no experience in the conduct of national reliability trials and to this lack of acquaintance with the complex requirements of these events is traceable the poor results for those tyre manufacturers whose courage in entering has been ill-rewarded. Without apparently considering the final effect, the committee accepted the gift of a cup for the sole prize in the tyre trials, thereby vitiating the object which the old committee invariably endeavoured to foster, viz., grading into classes according to performance and not the selection of one at the expense of the remainder. Nor were the tyre companies dealt with fairly, for the rules, upon which entries were invited, inferred that the tyres would be judged on the same basis as the machines, and the entry forms emphasised the inference. Only a short period before the date of the trial was the special cup accepted, and although appearing in the final programme of rules, it is doubtful whether the Manufacturers' Union were aware of its existence and the manner it would be used. Tyre interests are too vast to be played with in this manner, and no reasonably minded person can expect that the folks who so light-heartedly amended the regulations, right on the eve of the trial, will be permitted to treat with disdain the results of their interference.

There must be no more special cups or prizes if the tyre trials are repeated next year. I would go further than that by expressing the opinion, founded upon my observation in several six days' trials, that the awards should be strictly confined to gold, silver and bronze medals with accompanying certificates of performance, as regards machines, tyres, belts and any other fitment that may be tested. I would only except the team prize for machines nominated by the trade and for private owner-drivers nominated by clubs. This year we had ten of these special awards, and as some of the donors do not put their hands in their pockets unless they can see a *quid pro quo* in the shape of plenty of free advertisement, more and more of these things will materialise until the main object of the reliability trial is overwhelmed in a shoal of performances of no particular merit in themselves, but which, by means of ingenious word-twisting, can be claimed as superior to the long-distance tests gaining the medals.

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IT was interesting to note the work of a new tyre—the Stelastic—in the A.C.U. trials. Two machines were so fitted, and both obtained gold medals, and one—Mr. W. B. Little's 3½-h.p. Premier—was awarded the *Motor Cycle* Cup for the best performance. Both riders report that they never had cause to touch the tyres or blow them up since they were first put on.

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Notes from New York

FOR the Grand Prize and Vanderbilt Cup races the organisers have chosen a course, 8·2 miles round, in the Wauwatosa suburb of Milwaukee instead of the Greenfield course, which was so much boomed. The new course, which consists entirely of concrete roads, is roughly rhomboidal in shape, two sides of which are made up of the old and new Fond du Lac roads.

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The efforts of motorists to obtain permission to enter Yellowstone National Park have not been successful. The movement was opposed by the transportation companies having a monopoly on the tourist business on the Federal property, they contending that they had only four months in the year in which to work horses. The Army Engineers went into the question of improving the roads so that they could bear motor traffic, and they reported that it would cost $2,500,000 for repairs and $100,000 annually for maintenance. It was on this score that the sought-for permission was refused. An alternative suggestion was that special roads should be made for motor traffic, but the estimated cost ($3,000,000) was considered prohibitive.

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It is stated that the servant problem has been very acute in Duluth, Minn., but the motor has come to the rescue. The advertisements for "Mary Jane" offered, in addition to the usual wages, the free use of the employer's automobile on Thursday afternoons. There is now a boom in "generals" in Duluth.

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The continued rise in the price of gasolene, the wholesale price of which has gone up from 9 to 16 cents per gallon during the past six months, has roused the New York garage men, and a conference of those engaged in the automobile trade has been arranged to be held on September 10th. At the present time gasolene costs the garage man 16 cents a gallon, and he retails it at 22 cents a gallon, but some small garages outside New York have been selling at 15 to 18 cents a gallon. The New York dealers state that either these dealers are being charged a lower wholesale price or else they are diluting the gasolene with kerosene.

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Some time ago a simple stethoscope for locating motor troubles was placed upon the market, and now a more elaborate appliance has been invented. It is known as the Detectophone, and it consists of a sensitive microphone connected in series with a high resistance telephone receiver and a dry battery. Both the microphone and battery are housed in a cylinder, from the front of which projects a metal rod engaging the diaphragm of the microphone. In service the telephone receiver is clipped to the user's head, and the rod of the device is pressed against the various parts of the motor while it is running, until the part which is emitting an irregular sound is located.

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With a view to rendering easier the lot of the motorist touring between the principal cities of the States, a movement is on foot to have roadside fences and poles painted in special colours. The New York State A.A., for instance, is endeavouring to get the tops of fences along the road from New York to Buffalo, by way of Albany, painted blue, and it is suggested that a band of the same colour should be painted on all telegraph poles, &c., along the route. The Illinois Valley A.A. has already marked the alternative routes from Aurora to Starved Rock by putting blue stripes on the poles along the route *via* Yorkville, and white stripes on the road through Sandwick.

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Not long ago the motor car was blamed for a falling off in the millinery business and now it is the turn of the jewellers. At a meeting in Kansas City, Mo., the president of the American National Retail Jewellers' Association stated that the motor car was to blame for a marked falling off in the retail jewellery business. Extra money which formerly went in jewellery and suchlike was now used to pay for a car. He thought, however, it was only a craze which would die out and then the jewellery trade would revive.

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The wine merchants also have a kick for the motor car which is blamed for the fact that American imports of Champagne, for instance, dropped from 4,406,580 quarts in 1906–07 to 2,775,624 quarts in 1911–12. Hotel keepers, however, state that if the sale of wine has gone off, the motor car brings more people to their establishments to eat and drink less expensive but still profitable things.

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A report which has just been issued by the Office of Public Roads in Washington, D.C., shows that the State of Rhode Island, the smallest of the 48 States of the Union, has the largest percentage of improved roads. No less than 49·1 per cent. of Rhode Island highways have been improved, Massachusetts coming second with 49 per cent. and Indiana third with 36·7 per cent. Then follow with decreasing percentages Ohio, Connecticut, New Jersey, Kentucky, Vermont, California, Wisconsin, New York, &c.

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In a large number of States the use of convict labour has meant the carrying out of a good deal of road improvements which would not otherwise have been done. In Colorado more than $75,000 were saved in a single year by the use of convict labour, and in the State of Washington a saving of $395 a day has been realised. In Montana 20 per cent. of the cost of road construction has been saved, while in New York and Georgia convict labour has led to savings almost approximately as great. Several other States also make use of offenders against the law, and others are considering the question.

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Consternation was caused in American motor trade circles by the tragic death of Mr. H. F. Donaldson, president of the Society of Automobile Engineers, who took his own life in New York on August 15th. Mr. Donaldson was one of the most popular of the party of S.A.E. members which visited Europe last year, and his election as president of the Society last January was unanimous. Shortly after returning to America he became associated with Mr. Joe Tracy, the well-known American consulting engineer, and he had been for some time engaged in laboratory work connected with the firm.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible. 4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees. 8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. H. Pye, trustee; committee, Messrs. Moores, Emmerson, Tipper, Oliver, Rawson, Shaw, and Dean.

The minutes of the previous meeting were read and confirmed. Applications for membership were dealt with.

Letter-Box Robbery.

The secretary reported that, in order to avoid the expense of taking the case to the Sessions, it had been arranged to withdraw the charge of forgery, providing a statement was made by the solicitor defending to the effect that the prisoner was responsible for all the names appearing on the stolen orders. The magistrate consented to the withdrawal of the forgery charge, and expressed his intention of dispensing with the witnesses at the next hearing, and the prisoner was remanded in custody until Friday, September 6th. Members J. Hunt, of Enfield, and G. Davey, of Croydon, were present as witnesses on behalf of the Society. The thanks of all the members are due to them for their attendance in the interests of the general membership. The thanks of the Society are also due to Mr. Grundy and Dr. Ella Flint for their kind consideration in allowing their chauffeurs leave to attend the Court.

Despite the fact of the repeated requests that members will cross all postal orders sent, the majority received are left blank. The committee are giving credit to members who have proved their claim to having sent contributions, but hereby give notice that should there at any time be trouble with a postal order, responsibility will not be accepted unless the order is crossed.

Instructions were given the secretary to call a meeting of the Entertainments Committee at an early date in order to draw up a programme of events for the winter months, to consist of concerts, lectures, educational classes, billiard, and bagatelle handicaps.

We have it on good authority that a prominent person in the motor world will shortly make an effort to combine all classes of chauffeurs in one association with branches in all large provincial towns, the membership to comprise private chauffeurs, taxi-drivers, commercial van drivers, motor 'bus drivers—in fact, all men in charge of a motor vehicle.

Accepted for Membership.

Alexander C. Vickers, London.
Simon Rae, Argyllshire.
H. J. Brown, Downham Market.
Albert Burnett, Regent's Park.
George Cooper, Wimbledon.

Applications for Membership.

Harold G. Sillence, London, S.W.
Walter Barlow, Hampstead.
Albert Ernest Morris, Glamorganshire.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

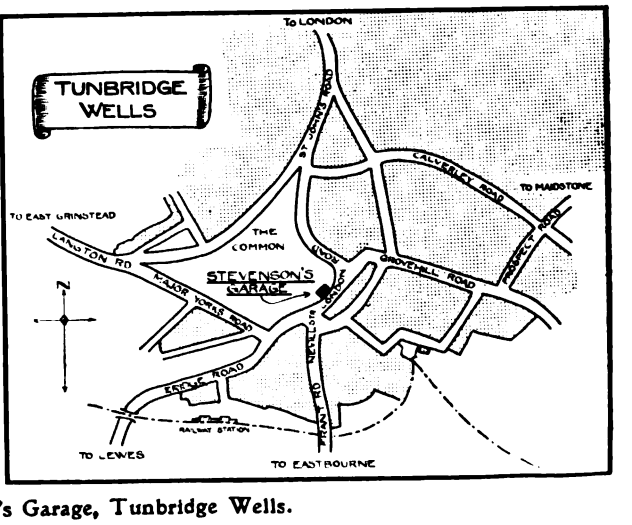
First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

For Garages Open Sundays, see "Auto." Guide every week.

For Accessories see Illustrated Directory weekly.

For all Cars and Addresses see Directory weekly.





N.S.C. GARAGES, No. 12.—Stevenson's Garage, Tunbridge Wells.

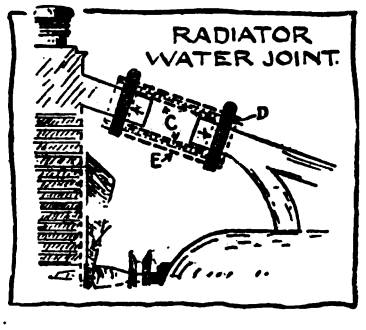
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FOREIGN MISCELLANY.

Universal-joints.—Those of our readers who take an interest in the technical side of motor car engineering cannot do better than read a learned article by Herr Regensteiner (Chief of the Technical Staff of the Siemens-Schuckertwerke, who build the Protos car) on the above subject,* in which the errors introduced by this piece of mechanism and the resulting stresses are dealt with graphically and in tabulated form.—**Zeitsch. d. Mittel-europ. Motorwagen Verns.*, June 15th.

An acetylene self-starter tip.—Unless acetylene-engine starting devices are properly installed there is liability, not only of developing engine difficulties, but of achieving poor success in starting. The inlet for the gas to the cylinders should be so arranged that the acetylene will not be blown directly against the points of the spark plugs, but rather, so that only the true combustible mixture of gas will reach them. Otherwise sticky carbon deposits will be formed that will quickly foul the points and prevent proper sparking.—*Automobile Topics.*

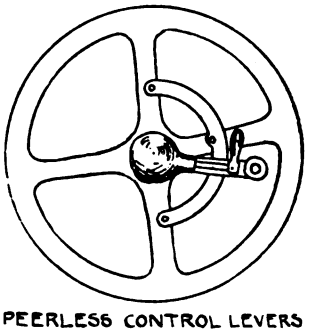
Radiator water joints.—Now that designers are paying more and more attention to detail improvements it is to be hoped that they will soon evolve something which is less of a makeshift than the rubber tube which is at present still in vogue. That the replacement of this simple fitting should require the dismounting of the radiator or (in some cases even) the cylinders is a fact which seems to give the direct lie to Darwin's theory of the survival of the fittest, but perhaps it is the exception which proves the rule! A correspondent in *Automobil Welt* gives the following method which he has found satisfactory in every respect. A strip of thin sheet metal, about 10 mm. wider than the distance between the pipes to be joined, is wound around the latter so as to bridge the gap between them; its outer surface as well as the ends of the pipes themselves should be covered with solution. Next a strip of rubber sheeting should be cut (*e.g.*, from an old inner tube), wide enough to form the joint, and sufficiently long to wrap at least twice round the pipes to be joined; the edges of this strip must project beyond the edges of the metal strip, which latter only serves to prevent the rubber from sagging. Finally, ordinary tube clips will serve to hold the whole together in its place. If desired, a second strip of sheet metal may be wound round the outside of the rubber to protect it against injury. In the adjoined sketch, C, is the internal strip of metal, and E, the external one, while at D are shown the two layers of sheet rubber.



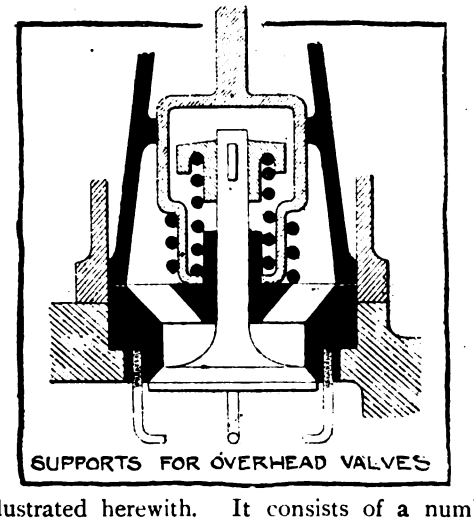
A black stain for brass-work.—Of the various finishes available for the fittings of a motor car nothing, in our opinion, looks better than brass, but the amount of polishing required to make it look well is sufficient to rule it out of court for the owner-driver who looks after his own car. Now, the black nickel finish which is becoming popular is somewhat expensive, besides, many who already possess brass lamps, horns, &c., may desire to rid themselves of the never-ceasing necessity for polishing. They will find the following recipe easy of application and reasonably durable:—

"Dissolve in 1,000 parts of ammonia water, 45 parts of natural malachite. All the parts to be coloured are then thoroughly cleaned, all oil and grease especially being removed from the surface. The solution can be placed in a large pot or other vessel which is big enough to contain all the articles to be blackened. When these are all put into the solution and allowed to stand for half-an-hour the vessel containing the mixture and parts is then slowly heated, allowing the temperature to rise gradually until all the objects take on the desired depth of colour. After this has been secured, the parts are removed, rinsed off and allowed to dry."—*The Automobile.*

Spark and throttle control levers.—A peculiarly neat way of disposing the ignition and throttle levers on the steering-wheel of a motor car is afforded by the Peerless car, which is of American origin. Where the two levers are superimposed and located on one side of the centre of the wheel, the shifting of the two levers will, as a rule, entail two operations, more especially if their normal positions are widely separated. In the device illustrated the ignition lever moves vertically, and is attached to, and moves with, the throttle-lever, which works over the quadrant in the ordinary way; the two are, therefore, always together, and can be altered simultaneously.—*Motor World, N.Y.*


PEERLESS CONTROL LEVERS

How to prevent overhead valves from dropping into the cylinder. We are acquainted with several owners of cars fitted with overhead valves whose fear of a broken valve and the (possible) resulting "smash up" has developed into an obsession. To those unfortunates we would recommend the device advocated by a writer in *Omnia* and illustrated herewith. It consists of a number of hooks screwed into the under side of the valve cage, so that in the event of a valve breaking, it will remain supported by these hooks. The valve shown in the figure is one of the old Renault automatic inlet type with variable spring tension.—*Omnia.*


SUPPORTS FOR OVERHEAD VALVES

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Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

82.

ANOTHER PROTECTION AGAINST WATER IN PETROL.—I read with great interest letter No. 77 under "Chauffeurs' Experiences" in your issue of August 24th, in which the writer tells us how he found that in using a clean chamois leather as an extra strainer when filling the petrol tank he prevented any water from getting into the carburettor, but with the slight disadvantage that he has to clean out the petrol filter once a fortnight because of the fluff off the chamois leather.

Might I suggest that he should try a piece of old linen or damask table cloth, or even a handkerchief, in fact, any linen that has been many times through the wash and no fluff will come off to clog the filter. I have used an old piece of linen for about three years as a strainer, with the result that no water or grit has got even as far as the filter, which, I believe, has not been cleaned out for three years. —*W. M. Fraser.*

83.

SEE TO YOUR HEAD-LIGHTS NOW.—Now that the evenings are rapidly growing longer many a chauffeur's thoughts turn towards paying a little more attention to the head-lights and everything connected with them than these things received during the past two or three months. Although I do not consider myself lazy—nor does the governor by-the-way—I have to plead guilty to not having attended to the head-lights and their outfit for the last three months as carefully as I do during the winter, and I know many otherwise quite efficient chauffeurs who are in the same boat. But he is a wise man who does not leave the job of overhauling all his lamps, gas piping and generator, in fact, everything that has anything to do with the lighting of the car, until one dreary autumn evening he is suddenly ordered for an urgent run to the station and misses the train because of those head-lights giving out. Few things irritate the average employer more than missing a train for such a trifling cause, especially when the keeping of an important appointment—business or otherwise—depends on catching it, and many a good job has been lost on account of such an occurrence.

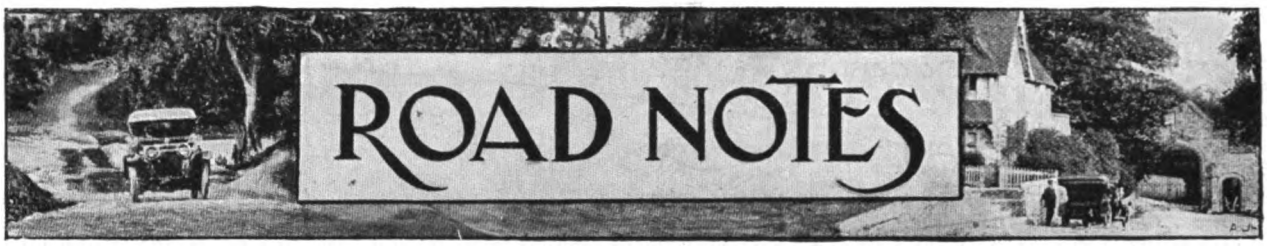
Well, to come to the point, there are quite a number of things to attend to. In the lamps themselves the reflectors —if of the metal type—may be badly tarnished and want resilvering. You can do this at home with Galvanit, but it pays to have them done properly by electro-plating. It makes a better job and is quite cheap. A glass may be cracked or the burners choked or out of line. Choked burners are cleaned by blowing through with the tyre-pump, but when the holes of a burner are out of line so that the two jets of gas do not meet and spread properly, the burner is best replaced by a new one if you want to prevent the cracking of your mirror or lamp glasses. Bray's "Roni" burners have only one jet and give a fine broad flame without the danger of damage to any part of your lamp.

Next see to the gas-leads. Take them all off and make sure that they are quite free inside and contain no water. If the rubber connections from the generator to the tubes and from the latter to the lamps are cracked or otherwise show signs of wear and exposure, scrap them and fit new ones. Gas bags interposed between the lamps and the gas-tube make for a steady light and reduce any tendency to flicker. Difficulty is often experienced in putting a tight-fitting piece of rubber tube over the metal gas pipe; ordinary soft soap smeared over the latter will make the former slide quite easily and will not affect the rubber like grease or oil, but do not choke the interior of your gas pipe in the process.

As there are so many different makes and kinds of generators on the market it would be taking up too much space were I to describe what has to be done with every one, even if I did know them all. The following, however, applies to every kind of acetylene generator, and the first thing is that it should be kept clean. Take it to pieces and empty out every compartment of it. Drain out any stale water, refill the tank and watch for leaks, also see that the vent hole in the filler cap is quite free. See that the water tap works properly and is not too loose, a rather stiff working tap is better than a loose one, because it will remain in the same position and not shake open or shut through the vibration of the car. Some generators of the Rushmore type, *i.e.*, those that have a needle-valve controlling the amount of water passing into the carbide chamber, often after having seen some rough service, develop the fault that the needle-valve will gradually close through the vibration. The reason for this is that the thread of the needle is slightly worn and allows the screw to turn. A fairly stiff coil spring placed under the knurled top of the spindle, will act in the same way as a lock-nut without the drawbacks of the latter. Having made sure of all these things proceed to the "messy" part of the business and thoroughly clean out the carbide chamber. Remove every particle of used-up matter and see that the corners are quite clean. Lastly, have a good look at the rubber washer between top and bottom of your generator and see that it does not leak. If it is broken or worn you can make a new one out of an old inner tube.

If you do all this now and keep the whole lighting system clean you can fill your generator to-morrow, and if you do not want your head-lights before Boxing Day you will find that they light up and burn well even then.—*N.S.C.* 16.

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COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

Holmes-Chapel-Talke Road.—On Middlewich road roller at work; lights at night.

GREAT NORTH ROAD.—Road up for repairs in London Road, Grantham; alternative route, turn left St. Peter's Hill, and proceed by Town Hall.

LANCASHIRE.—Members are requested to slow through Garstang 10¾ miles north of Preston.

Stone setts being laid half-width on Walton Hill, 1½ miles south of Preston, lights at night, special care is essential, as it is very dangerous at this place.

Members are requested to drive carefully through Poulton-le-Fylde and district.

YORKSHIRE. — *Middlesbrough-Kirkleatham Road.* — Under repair, full width, between 4th, 5th and 7th milestones from Middlesbrough.

Leeds District.—Controls still working at Moortown, Leeds; through the 10-mile limits in Burley-in-Wharfedale and Ilkley, ¼ mile west of Malton from the first milestone.

Control is also being worked between Arthington and Pool, on the Otley-Boston Spa Road, and in Chapeltown Road, Leeds, from Reginald Terrace to St. Mary's Road; also at Moortown (within the Borough of Leeds).

EAST.

Norwich-Aylsham Road.—Bridges at St. Faiths and Hevingham are still unrepaired, and cars are advised to travel *via* Holt Road.

Aylsham-Cromer Road.—This road is blocked to all traffic, and cars proceed *via* Holt to Cromer. Ingworth Bridge has fallen in; road closed; alternative route *via* Millgate, which is about 1 mile further round. To proceed to Norwich from Aylsham go down Hungate Street, Aylsham, straight ahead to Cawston, Woodrow Inn, turn to left, and proceed straight road for Norwich.

Royston-Newmarket Road.—Likely to be water at Pampisford Bridge, near the station.

SOUTH.

BATH ROAD.—Members are requested to proceed with special caution between Hounslow and Colnbrook, and to proceed slowly through Maidenhead. Members are advised to drive slowly at night from Sonning Railway Bridge for about ½ mile towards Reading.

BRIGHTON ROAD.—Members are requested to interrogate the Patrol at Kingswood cross-roads. Timing between Reigate and Dorking. Under repair between Kingswood and Reigate. Control likely to be working at Coulsdon.

KENT.—*Dover Road.*—Timing likely to be in hand at Bexley Heath, Shooter's Hill, Blackheath, and Deptford.

LONDON DISTRICT.—On account of timing operations special care is necessary:—Regent's Park Road; near Church End station, Finchley; Golder's Green; Redcliffe Gardens, the Boltons, Earl's Court Road, S.W.; Victoria Embankment; near Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; through Croydon to Purley; between Wimbledon and Ewell; Hounslow-Staines; Hounslow-Colnbrook; at foot of Roehampton Hill; Putney Heath; Harlesden; Maida Vale; Highgate; Holloway; Lewisham, High Street; also between Sudbury tram terminus and Harrow Hill.

MIDDLESEX.—Control working on Staines-Sunbury Common road.

Wood Green.—For the same reason special care is necessary near the junction of Bound's Green Road and Jolly Butchers' Hill.

Controls likely to be working in different places between Southall and Uxbridge.

SOUTHAMPTON ROAD.—Controls are being worked at night through Egham. Gas main being laid at Basingstoke. St. Cross Road, Winchester, is being widened. On the Southampton-Christchurch road controls are likely to be working between Christchurch Barracks and Iford Bridge; also at Pokesdown Hill.

SURREY.—Controls are likely to be in force at the undermentioned points: South Godstone Station, between Ewell and Epsom, Surbiton, between Kingston and Leatherhead.

SUSSEX.—Members are specially requested to observe the 10-mile limit at Uckfield.

The following main roads will be under repair during the week ending September 6th: Between Bolney-Pittshead, Crawley-Handcross, Ditchling-Haywards Heath, Sayers Common-Hickstead, Albourne-Newtimber, Lewes-Polegate, Lewes-Chailey, Horsebridge-Horham road, Eridge-Crowborough, Kent boundary (at Kingshill) and Cooper's Corner, Little Boarzell-Swiftsdean; tarring at Hickstead and Wellington Road, Portslade.

WEST.

Gloucester-Malvern Road.—This road is impassable at Massemore, the water being very deep just here.

Exeter-Honiton Road.—Repairs at Monkton are now completed.

Exeter-Okehampton Road.—Very bad condition between Pocombe Bridge and Tedburn St. Mary.

Cardiff District.—Timing is likely to be in hand in Cathedral Road, from Cowbridge Road to tram terminus; also at Canton, on the Cowbridge Road.

MIDLANDS.

Members are requested to slow through Redbourne, Fenny Stratford and Stony Stratford. Road being widened between Fenny Stratford and Towcester. Watling Street is likely to be under water between Gailey cross-roads and Ivetsey Bank.

Warwick-Stratford Road.—From Warwick to Longbridge for 2 miles the road is in very bad condition.

Derby-Loughborough Road.—There is likely to be water on the road at Dishley, 2 miles north of Loughborough.

Birmingham-Worcester Road.—Roller working at Upton Warren, 2¼ miles south of Bromsgrove. Water over road at Wychbold, between 8th and 9th milestones; also likely to be on the Bromsgrove side of Droitwich.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

New Members.—A considerable number of well-known motorists have joined the Association during the past few weeks, among whom are the Earl of Ranfurly, Lord Dynevor, Lord Magheramorne, the Earl of Lisburn, Baron Karl von Swaine, Mr. Alfred de Rothschild, Sir Ernest Soares, Bart., Sir W. E. S. Ffolkes, Bart., Sir James Domville, Bart., Sir Richard Davis Awdry, K.C.B., Sir Dorabjee Jamsitjee Tata, Sir Clifford J. Cory, Bart., M.P., Sir Henry Andrew Turner, Bart., Sir Edward B. James, Bart., Sir Charles Tyser, Bart., Dowager Lady Hulse, Lady Champion de Crespigny, Lady Gibson, the Countess of Ravensworth, and the Comtesse de Jotemps.

Special Road Notes.—Inconsiderate driving is being complained of on the Carlisle road in the Summit district, *i.e.*, between Beattock and Crawford, N.B., and the Chief Constable of Lanarkshire, in communicating with the Association on the matter, refers to several sheep which have been killed by cars, and further states that unless something is done to put a stop to this inconsiderate driving he will be obliged to put a control on. Similar complaints are being made regarding the pace of cars through Tavistock, where controls are also under consideration. In the village of Barford, near Warwick, members are specially cautioned to drive with care.

Patrolled Roads.—In response to suggestions sent in by members, maps showing the roads patrolled by the Association have been specially printed for insertion in the handbook. These maps show at a glance the districts patrolled, and may occasionally afford a quicker means of finding a patrol when assistance is required than the patrols section of the handbook. The maps may be obtained by members upon application to the secretary.

Narrow Roads.—The attention of the Association has been drawn to the unsatisfactory conditions prevalent in York Street, Plymouth. This highway is very narrow, and has to carry a considerable amount of traffic. The Association has communicated with the local authority, and the question of widening the road is at present under consideration.

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A SIMPLE STORY AND ITS MORAL.

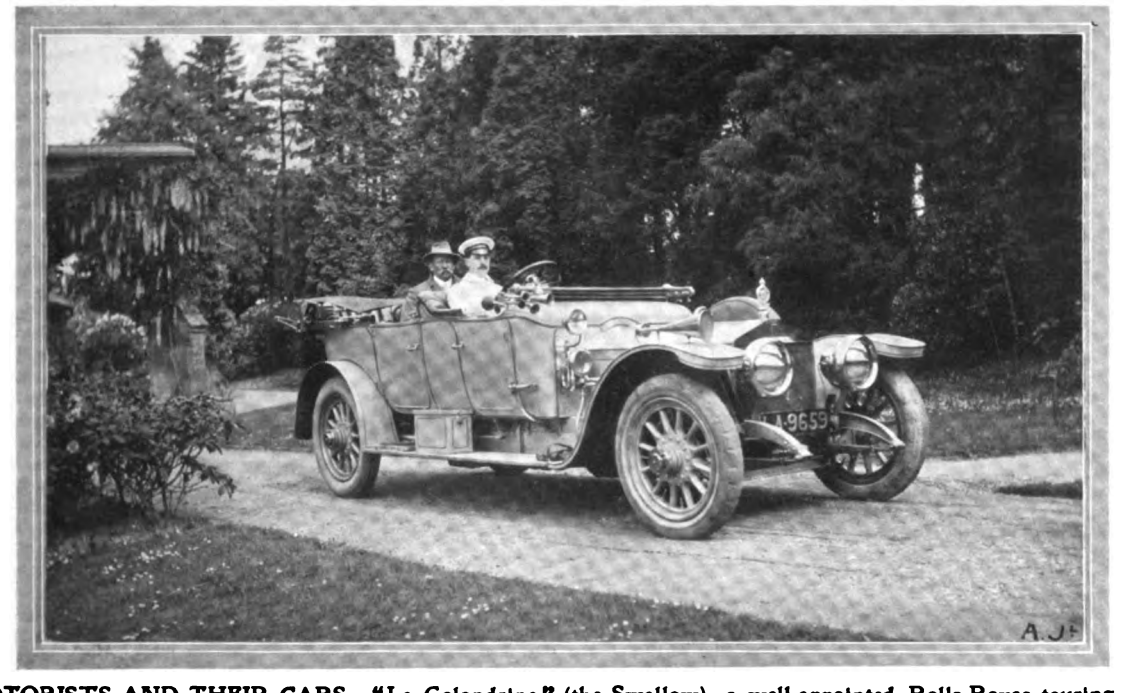
My friend had bought a new car—one of the popular two-seaters with a diminutive four-cylinder engine and a smart little body that was fit to be a throne. And he had made his purchase without my advice because, having sought it on two previous occasions, he thought he would turn his borrowed experience to account for himself by doing it all on his own. Moreover, he chose well, as, later, I was bound to confess when I had to confirm his judgment in the selection of a chassis and his taste in the design of a car. Previous counsels on my part, however, had not so entirely been without avail as to prevent a very apparent anxiety on his part to hear what I should say of his new toy, and accordingly I found myself booked for a pleasant run in the country on the following Saturday, and, anon, found myself alongside the car with a courteous invitation to take the wheel.

Yes, certainly it was a very neat and comfortable two-seater, and with some justifiable pride my friend pointed out to me its numerous special points, many of which were the outcome of his own ideas and had been introduced to suit his rather exacting requirements. According to his own version of it, the car possessed everything that a motorist could *possibly* want, and I hesitated at first even to suggest the idea of a doubt in my mind by enquiring of the whereabouts of the spare tyre. Finally, however, summing up courage, I remarked on the absence of any special brackets or tray for an extra wheel, implying at the same time that doubtless he had some special conception of his own that was about to be fitted. No, "the spare tyre could be carried in the boot," said my friend, and duly relieved in mind by the assumption that the spare tyre did indeed repose among the tools, I said no more on the matter and we forthwith started.

Crossing London Bridge, our objective was far-away Sandwich, and I chose to follow the Folkestone road as far as Charing before turning off to the left. Hereabouts, the road becomes more undulating, and some of the hills afforded a splendid opportunity of trying the little car's climbing powers. It ran perfectly, the air was bright and clear—one of those delightful interludes in which one can enjoy the freshness of the rain-washed atmosphere without the inconvenience of subjecting oneself also to the process. We were as happy as larks; it was delightful—bang! what was that? No need to ask twice. An ominous jolting under the off-side rear corner of the car made it all too apparent to the coarser senses of the human anatomy that we had burst a tyre.

Yes, there it was, almost a brand new tyre done to death after the mere existence of a few paltry miles. It was an example of the everlasting element of luck that still relieves the modern car of its monotonous reliability. I was pleasantly amused, my friend sarcastically irate. But he knew and I didn't, not until I had opened the boot to discover that I had misplaced the emphasis in his simply worded explanation that "the spare tyre *could* be carried in the boot." No doubt it could; it could be carried on the wheel, too, if we had been within a mile of anything resembling a pneumatic. Why, there was not even a tyre lever, as I discovered on further investigation, and driven to the limits of desperation by the barrenness of the land, I was fain to borrow some of my friend's sarcasm, and to enquire with sweet gentleness if he had a method of his own for jacking up the axle with a sparking-plug, or did he carry the apparatus that might conceivably be required for this purpose in his waistcoat pocket.

The weather had turned warm, extraordinarily close I found it thereabouts, and the sky looked suspiciously like rain—and then a most extraordinary thing happened, a



MOTORISTS AND THEIR CARS.—"La Golondrina" (the Swallow), a well-appointed Rolls-Royce touring car, built and well fitted up for extensive touring. The equipment of the car includes two spare wheels, C.A.V. lighting outfit, compass, &c. The owner of this magnificent car is Mr. Harry Reid of "Rockhurst," West Hoathly, Sussex; his chauffeur, Henry Harding, N.S.C., has charge of it.

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thing that has quite changed my views about humanity in general, and of motorists in particular. A little car like ours that I was eyeing from afar with surly disdain as it came skimming down the road surrounded, phœnix like, with a cloud of what might have been fire, but which I knew too well would leave us smothered with dust, drew slowly to rest, and the most courtly gentleman it has been my pleasure to meet smiling benignly from behind a pair of gold-rimmed spectacles, and with a most humorous mouth enquired whether he could be of any assistance. Guessing our plight with a discerning eye, he offered, wonder of wonders, to lend us his "Stepney," and to go with us so far as the next big town.

And the Stepney was the right size, too, which was the most extraordinary thing that ever happened, and you may believe that when the patron saint of motoring stepped down to help the needy, that mere mortals like ourselves put *no* obstructions in his way. We accepted gladly, and in Canterbury, withal, we found the means of restoring to our delightful friend his most useful property, and, at the same time, to repair with more or less indifferent results the damage that had been done to our own.

But my companion was very quiet during the drive home, and I was not far short in my guess as to his trouble when he meekly enquired if I had anything on next Monday morning that would prevent me paying a visit with him to the Stepney showrooms in Great Portland Street. We went. My friend inspected every wheel and fitting in the place just as if he had never seen anything like them before. They lured him with a fascination that was extraordinary, and when he came away after giving an order for his car to be fitted with the latest flanged device that is permanently bolted to the wooden felloe so that you hang on the Stepney with the ease and celerity wherewith you may hang a coat on its peg, I firmly believe that if the salesman had told him it would be a good idea to place the fitting on both sides of the wheel that he would have acceded to the suggestion without a murmur.

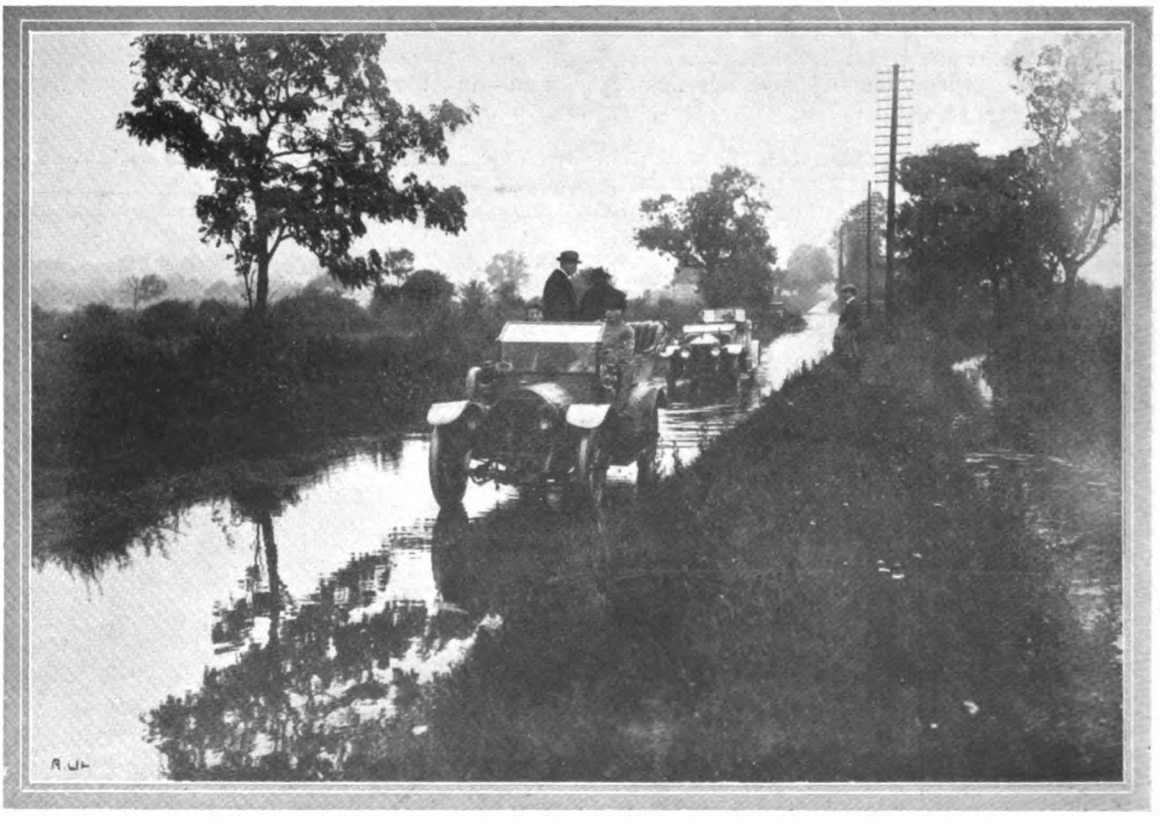
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Public Health and Motors.

In his annual report for the past year the ex-Medical Officer of Health for Hampstead (Mr. G. F. McCleary) does not mince matters in speaking of the gradual disappearance of horses from London streets as a valuable sanitary reform effected without intervention of the sanitary authorities. It is time, he says, that it should be realised that the presence of the horse in a large modern city is incompatible with cleanly civic life, and any measures intended to hasten its disappearance should be welcomed by sanitary reformers. In Hampstead in the past few years seven large stables, which accommodated some hundreds of horses, have been converted to other purposes, to the great advantage of dwellers in the neighbourhood. And so say we, elsewhere.

Motor 'Buses at Rome.

The municipal authorities at Rome are not wedded to tram cars, apparently, as they are inviting applications for a concession to run motor 'buses on four urban routes of a total length of about 13½ miles. Tenders will be received up to September 30th.



THE RECENT FLOODS IN THE COUNTRY.—Our photograph is in Leicestershire and, incidentally, the cars seen are in connection with the tyre test in which the Challenge Rubber Mills are running their Victor tyre on one wheel in conjunction with three other prominent makes of tyres on the other wheels.

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RACES, RECORDS AND TRIALS.

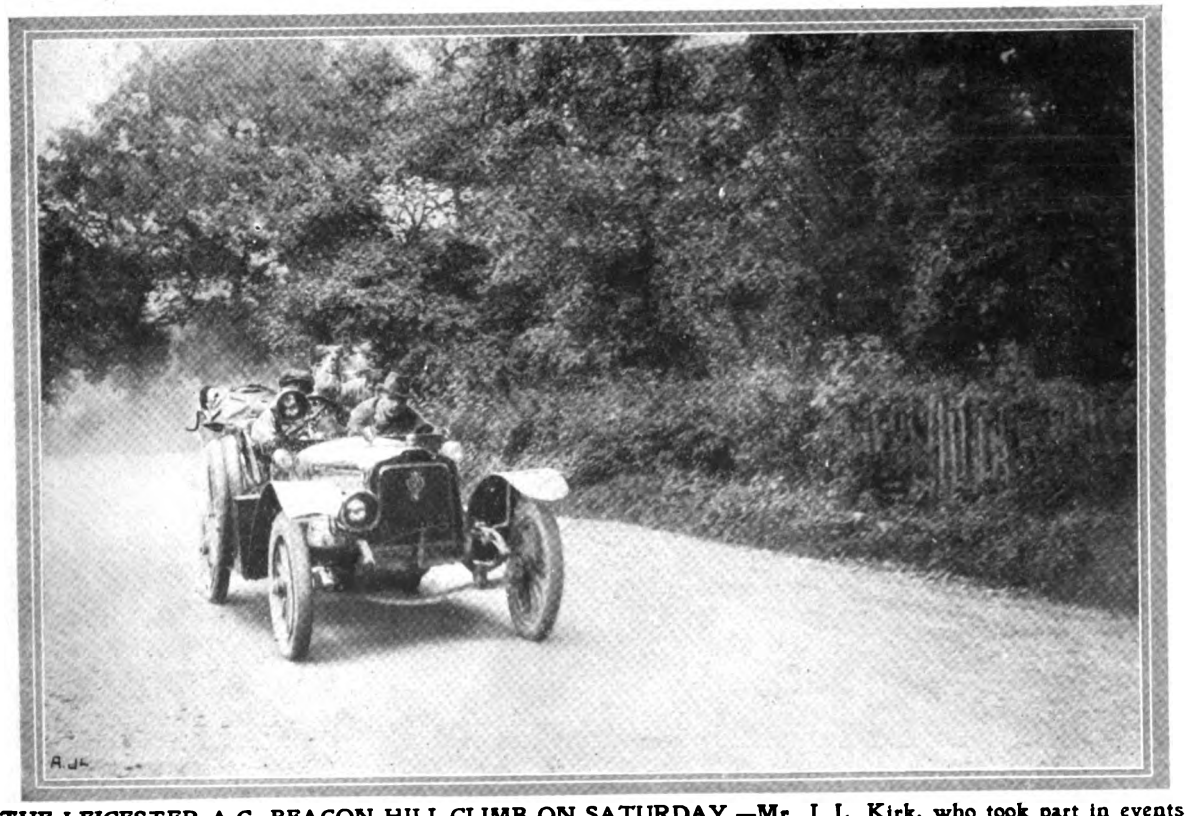
The Leicester A.C. Hill-Climb.

ALTHOUGH held under the closed competition rules of the R.A.C., the annual hill-climb of the Leicester A.C. attracted a large number of entries, and as the weather kept fine last Saturday afternoon, the event provided an abundance of good sport. The course on Beacon Hill, Woodhouse Eaves, was 1,450 yards long, an average gradient of about 1 in 14, the steepest pitch being about 1 in 10. Over 50 cars took part in the five events, and previous to the competition they were weighed with their passengers at Quorn and Woodhouse Station. In event A, open to cars not exceeding 20-h.p., Mr. C. A. Bird (12–16-h.p. Sunbeam) took the medal for fastest time, 1 min. $4\frac{1}{5}$ secs., with Mr. G. H. Woods (20-h.p. Crossley) second, and Mr. L. Coatalen (12–16-h.p. Sunbeam) third. On formula, Mr. C. Bianchi (15-h.p. Crossley) was first, Miss L. B. Starkey (12–16-h.p. Sunbeam) second, and Mr. C. A. Bird on a similar car third. In event B, open to cars of any h.p., the time medal was taken by Mr. G. H. Woods (20-h.p. Crossley) in 1 min. $3\frac{3}{5}$ secs, Mr. J. W. Hedge (25-h.p. Talbot) being second, and Mr. L. Coatalen (12–16-h.p. Sunbeam) third. On formula, Mr. Cecil Bianchi was again first, with Miss Starkey second, and Mr. Coatalen third. Event C was for cars costing not more than 200 guineas retail, and the Usher Challenge Cup for the best formula performance went to Mr. H. Jefferson on a 10-h.p. Turner. The best time was made by Mr. B. J. Cafferata on a 15-h.p. Buick. Event D, "the Old Brigade," was open to cars delivered previous to the 1907 Olympia Show, and of the dozen cars which competed the winner on formula was Mr. F. H. Gerard, 6-h.p. De Dion of the 1902 vintage. Second place was taken by Dr. P. E. Tressider on a 1906 15-h.p. Talbot, and Mr. R. Sutton Clifford, jun., on a 1905 6-h.p De Dion was third. The concluding event was for the Du Pre Cup, and some 25 members of the Leicester, Notts, Derby and North Staffs clubs were timed up the hill, but the result cannot be given until the R.A.C. has issued its award. The Hartopp Challenge Cup for the best performance on formula in events A. B. and C. by an amateur member of the Leicester A.C., was awarded to Mr. R. Sutton Clifford, jun., driving a 12–15-h.p. D.F.P. The time trials for the medal for the fastest time of the day resulted in favour of Mr. G. H. Woods (20-h.p. Crossley), his time being $59\frac{3}{5}$ secs., C. A. Bird (12–16-h.p. Sunbeam) was second in 1 min., J. W. Hedge (25-h.p. Talbot) third in 1 min. 3 secs., and L. Coatalen (12–16-h.p. Sunbeam) fourth in 1 min. $5\frac{3}{5}$ secs. At the conclusion of the hill-climb the competitors and their friends adjourned to Quorn, and the prizes were distributed at the Manor House Hotel by Mrs. E. G. Mawbey, wife of the president of the Leicester A.C.

The O'Gorman Trophy.

FOR the race for the O'Gorman Trophy, which will form the principal item in the programme of the race meeting at Brooklands on September 28th, ten entries have been received :—

Harold Lambert (15·9-h.p. Crossley), W. M. Letts (15-h.p. Crossley), G. O. Herbert (15·9-h.p. Singer), C. L. E. Geach (15·9-h.p. Singer, "Bunny VIII"), R. S. Witchell (15·9-h.p. Straker-Squire), P. C. Kidner (20-h.p. Vauxhall), P. C. Kidner (20-h.p. Vauxhall), H. M. Bowden (13·9-h.p. Vivinus), H. M. Bowden (13·9-h.p. F.A.B.), H. M. Bowden (13·9-h.p. F.A.B.).



THE LEICESTER A.C. BEACON HILL-CLIMB ON SATURDAY.—Mr. J. L. Kirk, who took part in events A and B, and the Du Pre Cup, on his 15-h.p. Talbot.

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The A.C.U. Trials.

IN his report on the tyres which were tested during the A.C.U. Six Days' Trial, the judge, Major F. Lindsay Lloyd, points out that except in the case of one cover, which was changed as a precautionary measure, no cover was changed during the trial, thus, although the conditions were extremely severe, the distance of 1,000 miles is evidently not sufficient for an exhaustive test of modern tyres. He awards the *Motor Cycling* prize for the set of tyres which withstood the severe conditions of the trial most satisfactorily to the set of tyres entered by the Palmer Tyre Company, and fitted to Mr. Frank Smith's 5–6-h.p. Clyno and side-car. Although there was no second prize he placed the set of Hutchinson rubber studded tyres on Mr. McMinnie's 3½-h.p. Triumph second. Major Lloyd was also the judge for the belts entered for the trial and awarded the prize to a 1 in. rubber and canvas belt entered by J. Pedley and Son, Ltd., fitted to Mr. P. Weatherilt's 3½-h.p. Zenith, a similar belt fitted to Mr. A. J. Dixon's Singer being placed second, while the Service leather belt on Mr. W. B. Little's Premier was commended.

A Trial at Scarborough.

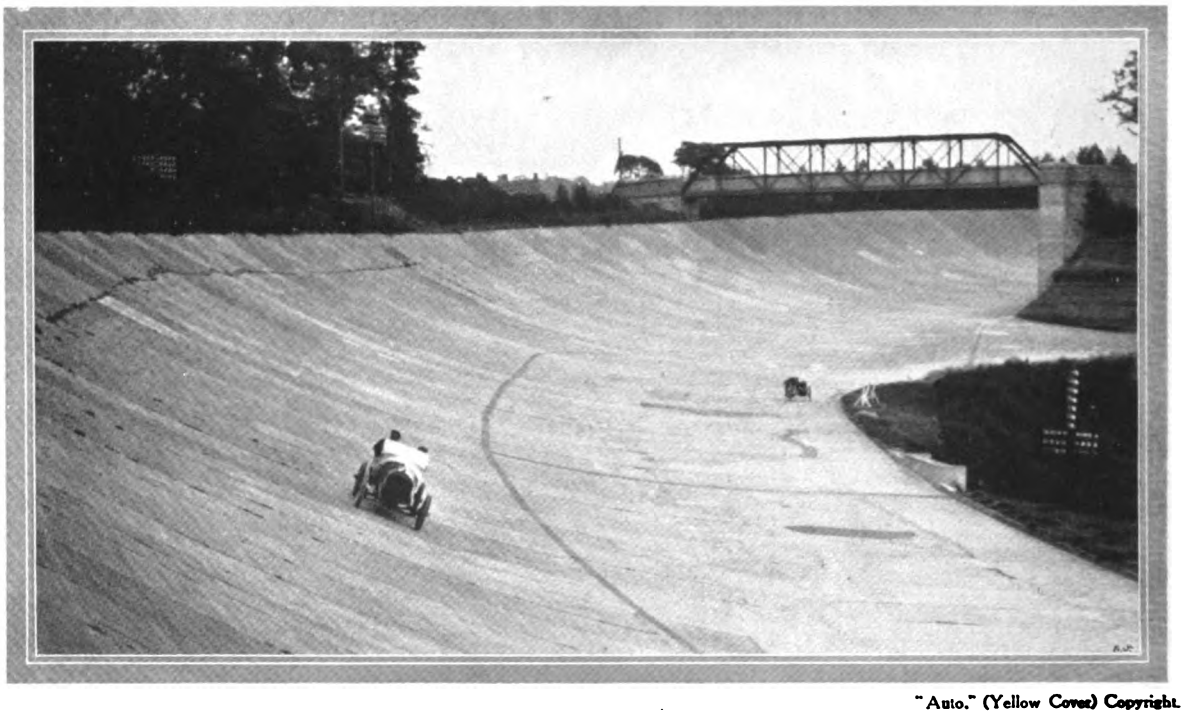
WET weather on the 25th ult. made the 114-miles trial of the Scarborough and District Motor Club a somewhat severe one. The course included some good tests of skilful driving, such as the Lunber Bank at Glaisdale, which has a pitch of 1 in 3¼ preceded by an awkward bend which was too much for all the motor cycles. There were twenty-one starters, and the results were: Touring cars—Mr. J. W. F. Tranmer (10-h.p. Stoewer) first, securing the Klawitter Challenge Trophy, J. Hutton (12-h.p. B.S.A.) second, and Dr. J. G. Kirk (15-h.p. Talbot) third; Motor Cycles—J. E. Truefitt (3½ h.p. Triumph) first, Walter Jackson (3½-h.p. Premier) second, and D. Gill (3½-h.p. Calthorpe) third. In the side-car class, C. P. Finn (6-h.p. Enfield) was the only one to get through.

Trials with Gautier Tyres.

So satisfactory did the Gautier Metallic Fabric Pneumatic tyres perform in the 3,000-miles trial, which has just been held under the supervision of the Royal Automobile Club, that the Syndicate has decided to continue the trial. The cover of this tyre is different from other covers in that the canvas is replaced by a metallic fabric composed of steel chains, which, it is claimed, renders the tyre unpuncturable without loss of resiliency. We understand that the rubber can easily be replaced when worn out, and should by any chance some of the chains get broken the damaged links can be changed without difficulty, and at very small expense. A set of tyres 880 by 120 mm. were used for the trial.

A Trial at Newcastle.

FIVE motor cars and a dozen motor cycles took part in a reliability trial organised by the Newcastle and District Motor Club on August 24th and 25th. The outward journey was *via* Lanchester, Stanhope and Penrith to Keswick, a distance of 87 miles, while the return trip on the following day was by way of Windermere, Kendal, Kirkby Stephen, Barnard Castle and Darlington, this route of 180 miles making the total distance 267 miles. Rain fell practically the whole of the time, and as a result the roads in some parts were almost unridable. Among the motor cars, Mr. P. A. Jackson on a 8-h.p. Clement-Bayard, who lost only one mark, was first, and Mr. A. D. Nicholson on a 14–16-h.p. Belsize second, and J. E. Gould on a 20-h.p. Vulcan third. Among the motor cycles Mr. G. W. Raper on a 2½-h.p. A.J.S. finished with full marks and only lost 9½ secs. at all controls. He took the first prize and Mr. Lawrence Austin on a 5-h.p. A.J.S. side-car, who also lost no marks, was second, while Messrs. F. A. Rudd (6-h.p. Rex), L. W. Hall (3½-h.p. Triumph), R. J. Spencer (6-h.p. Matchless) and W. Baxter (5-h.p. A.J.S.) all completed the course and lost less than thirty marks, so entitling them to silver medals.



"Auto." (Yellow Cover) Copyright.

THE STAR STANDARD CAR ROUNDING THE WEYBRIDGE BEND DURING ITS 12 HOURS' TEST AT BROOKLANDS.—In the background, the Rudge-Whitworth motor cycle and side-car beating the 100 miles and other records.

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THE HILL-CLIMB FOR THE CARAMAN CHIMAY CUP AT THE BOULOGNE MEETING.—Riviere, on the Hispano Suiza, tackling the hill, his time being 23⅕ secs.

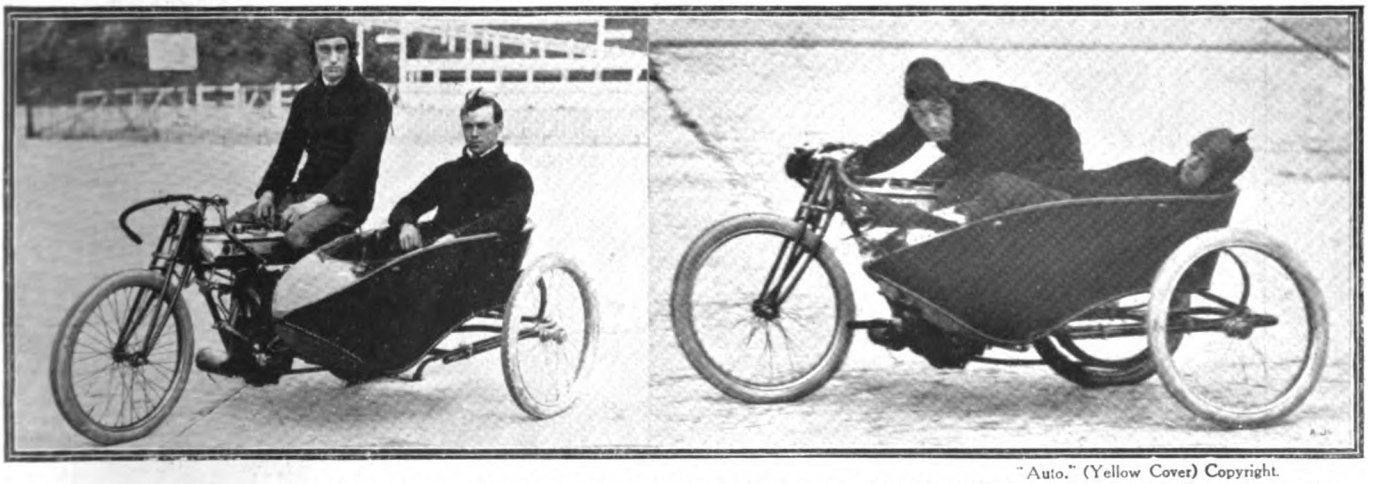
Rudge Records at Brooklands.

ON a 3½-h.p. Rudge machine and side-car, Mr. Stanhope Spencer on Friday of last week set up new records at Brooklands for one, two and three hours and 100 miles. The new figures are as follows, the old records being given in brackets :—

1 hour ... 46 miles 587 yards (43 miles 356 yards).
2 hours ... 86 miles 115 yards (80 miles 1,250 yards).
3 hours ... 126 miles 900 yards.
100 miles... 2h. 16m. 10⅗s. (3h. 6m. 41s.)

The Boulogne Meeting.

CONTINUING the results of the Boulogne Meeting of which the particulars of the first two days were given in our last issue, the programme on the 27th consisted of speed trials over a distance of 3 kiloms. from a standing start, 7 kiloms. from a flying start, and 1 mile on the Baincthun Hill. Boillot on his Peugeot came out top in all three events, his time being, 3 kiloms., 1 min. 17⅕ secs. ; 7 kiloms., 2 mins. 34⅕ secs. ; mile, 1 min. 11⅗ secs. In the touring cars Joerns on his big Opel was, of course, first, his time being, 3 kiloms., 1 min. 38⅘ secs. ; 7 kiloms., 3 mins. 24⅗ secs. ; mile, 1 min. 26⅕ secs. Among the small touring cars, Rigal's Sunbeam did fairly well, but was unable to show up against the very large racing and touring cars. On the 29th, the last day, an appearance competition was held at Touquet. In the closed classes, a Panhard was first and a Rolls-Royce second, while in the Open Vehicles, a Renault was first and Brasier second. In the class for competitors at the



"Auto." (Yellow Cover) Copyright.

THE RUDGE RECORD-BREAKING MOTOR CYCLE AND SIDE-CAR CREW AFTER THEIR WORK ROUND THE BROOKLANDS TRACK.—Mr. Stanhope Spencer and his passenger, Mr. Woodman. On the right, the Rudge machine on its last lap at a speed of 46 m.p.h. Although the passenger is *apparently* reposing peacefully, it will be noticed Mr. Stanhope Spencer has his eye on our photographer. The new records were for one, two and three hours and 100 miles.

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Boulogne Meeting, Rigal's Sunbeam was easily voted the leading place. In the afternoon, trials were held over the standing kilom., followed by 500 metres from standing start to a standing finish, the time for both being added together. Joerns on the Opel won the first prize, doing the kilom. in 40 secs. and the 500 metres in 29⅘ secs., a total of 1 min. 9⅘ secs.; Crespelle was second, taking 1 min. 25⅕ secs. for the two events. Among the touring cars, Martin's S.C.A.R. was very good, being only a few seconds behind the Crespelle, which was a racing car, and beating Rigal's Sunbeam. In two other classes S.C.A.R. cars were first. Both the Franchomme and the Caraman Chimay Cups were won by Derny on a Hispano Suiza with Joerns second. The latter won the Coupe du Pavillon Imperial, while Rigal on his Sunbeam gained the Coupe Crespelle with Hispano Suiza cars second and third.

The Sarthe Grand Prix Race.

FOR their Grand Prix race, which is to be held to-morrow (Sunday) and Monday, the Sarthe A.C. has received entries of 27 cars and 34 motor cycles. The cars include 8 of the large variety, which are to compete for the Coupe de la Sarthe, among them being two Peugeots, to be driven by Boillot and Goux respectively, a Fiat with its owner, Chaves, at the wheel, a Benz, a Darracq, and Christiaen's Excelsior.

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MOTOR BOATING.

The British International Trophy.

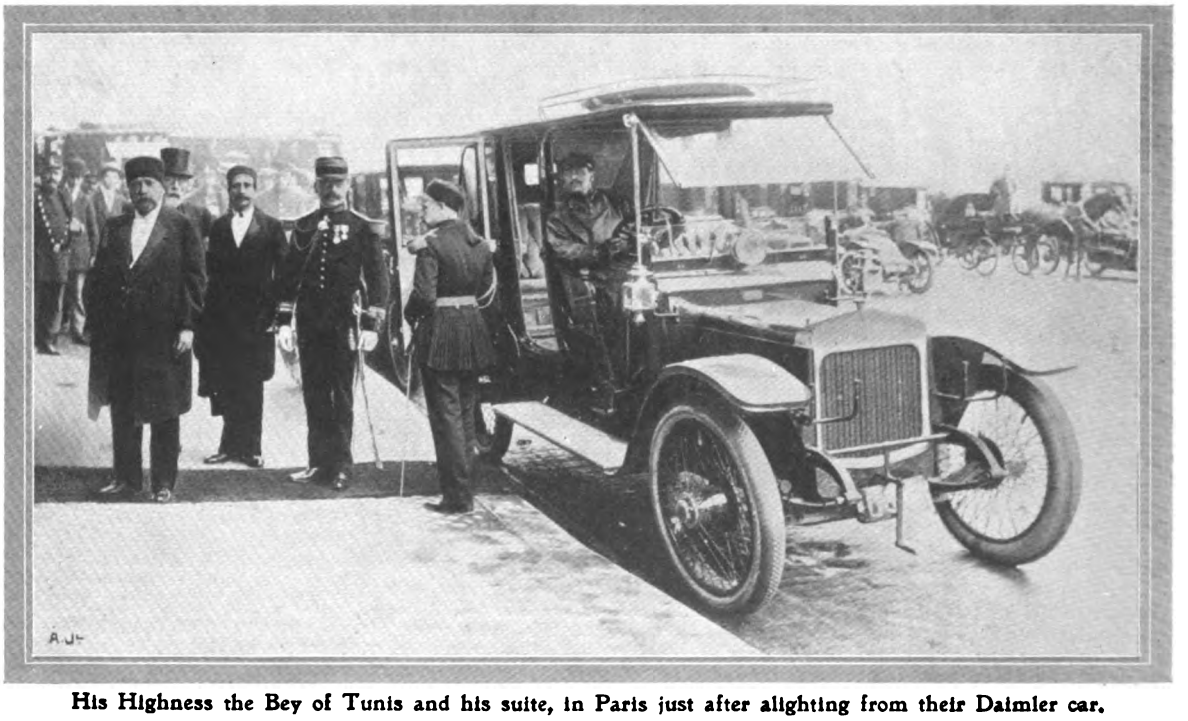
SUCCESS in the first of the series of races for the British International Trophy went to America, "Baby Reliance II" winning at a speed which was returned as just over 41 knots. The British boats, "Mona" and "Maple Leaf IV," were second and third respectively. It transpires that "Maple Leaf" was not able to make a serious bid for the race, as she had carried away a rudder on the previous day, and it was fortunate that she was able to proceed round the course and so qualify to take part in the subsequent races. In the second race on Tuesday "Maple Leaf" had an easy victory, with "Mona" second.

R.M.Y.C. Racing.

THE improved conditions in Southampton Water on Saturday last enabled the programme of motor boat races arranged by the Royal Motor Yacht Club to be enjoyed by the large number of members on board the floating clubhouse at Netley. Special interest was taken in the first motor boat race in which Mr. Tom Thornycroft was running his new boat, "Gyranda," for the first time. Mr. J. Bird's "Rip III" was the only other starter, and at the end of the first round of 8½ nautical miles she was leading by 4 secs., while at the conclusion of the second round she won by 29⅕ secs., her time for the full course of 17 miles being 20 mins. 38⅘ secs. Only three of the under-15-knot boats started, and Mr. H. W. Hutchinson's "Dranoel" finished first, with 16 secs. to spare. Mr. F. P. Armstrong's "Solace" was second, making a very good race, but on the second round she was hampered on the way to the Dean's Lake buoy by the wash of the Jersey steamer. In the over-15-knots class race there were four starters, and "Rip III," running splendidly at an average speed of 29 knots, secured another victory. Mrs. Edgar Thornton's "Columbine" was second. A sprint handicap sweepstake for all-comers concluded the programme, and was won by "Solace," "Rip III" securing second place, only 14 secs. behind the winner, while "Dranoel," which was third, was only 2 secs. astern, followed at an interval of 5 secs. by Lord Montagu's "Carina."

Motor Boat Racing at Great Yarmouth.

IN view of the motor boat races arranged to be held on Breydon Water, Great Yarmouth, last Saturday, the British Motor Boat Club decided to run off the races,



His Highness the Bey of Tunis and his suite, in Paris just after alighting from their Daimler car.

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which had to be postponed at Lowestoft owing to the weather on the previous Monday, on Breydon Water on Friday. Mr. J. E. Dewhurst's "Stella" won the race for cabin cruisers. Mr. H. Hollingsworth's "Mouse" took the first prize in the race for boats under 12 knots, with Mr. J. E. Dewhurst's "Query" second, while the race for the 21 ft. class was won by Mr. J. H. Bell's "Fascination." The race for boats exceeding 12 knots and also the Handicap Sweepstake ended in precisely the same result, Mr. H. Hollingsworth's "Cordon Rouge" being first, Mr. Oscar Martin's "Baby V" second, and Mr. T. Desno's "Secret" third. Mr. J. A. Leyland's "Doonie" finished first in the over 12 knot class race, but she had to suffer disqualification owing to having exceeded the declared speed on which she had been handicapped. A further series of races was held on Saturday, when Mr. G. Paxton's "Braemar" won the Cabin Cruisers' race, Mr. T. Desno's "Secret" took the prize in the exceeding ten knots race with Dr. Morton Smart's "Angela II" second, and "Fascination" again took the honours in the 21 ft. class race. In a handicap for boats under ten knots, "Query" took the first prize, and Mr. H. P. Roff's "Bluebird" was second, while an event for members of the Great Yarmouth Yacht Club, which gave the racing on this day, Mr. O. Martin's "Baby V" was the winner.

B.M.B.C. Boats at Monaco.

FOLLOWING on the success of the B.M.B.C. Class Boats at Monaco this year, arrangements have been made by the British Motor Boat Club with the International Sporting Club of Monaco to have a special class at next year's meeting and also to have a special class in the Omnium race. The British Motor Boat Club is giving a hundred guinea cup for an International 21 ft. class under the same conditions as the B.M.B.C. boats, and it is anticipated that in addition to at least eight boats from this country there will be representatives from France, Germany, Holland, Sweden and Italy.

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A Confidence Worthy of Support.

FROM Messrs. Brew and Reeves of the Central Garage, 330, Kennington Road, London, S.E., we have received a letter drawing special attention to an offer which they are making in respect to their Brew-Ree Shock Absorbers. Not only is the offer a generous one but it backs up in a practical way the claims which they make for the fitting. Briefly, the firm will supply and fit 200 pairs of Brew-Ree Shock Absorbers at a special price to those of our readers who write for particulars of these shock absorbers. For those fitted to cars under 30 cwt. the price is £3 17*s.* 6*d.* a pair, while for cars over 30 cwt. the price is £4 17*s.* 6*d.* per pair. So confident is the firm that the Brew-Ree is the best absorber on the market that if after fourteen days they are not to the entire satisfaction of the user Messrs. Brew and Reeves will remove the fitting, refit the springs as before and refund the money paid in full.

In Memory of a Pleasant Trip.

BY way of a permanent souvenir of the pleasant time spent by the party of members of the American Society of Automobile Engineers in this country last autumn, a beautifully-illuminated Vote of Thanks has been received by the Institution of Automobile Engineers who organised the visit, and it now adorns their headquarters at Queen Anne's Gate, Westminster. A pathetic interest attaching to the document is that it is signed as president of the S.A.E. by the late Mr. H. F. Donaldson, whose tragic death is recorded elsewhere.

CORRESPONDENCE.

Experiments in Self-Starters.

SIR,—In your issue of August 24th, 1912, you publish a letter from Mr. S. F. Edge, giving his experience with motor engine starters, in which he makes some rather strong remarks about compressed acetylene.

Mr. Edge says "I think compressed acetylene is illegal in this country and there is no question *it is dangerous*." Compressed or dissolved acetylene has been in use in this country for many years. The rules of the Home Office exempt compressed acetylene from being deemed an explosive, providing certain simple conditions are complied with in its manufacture, which conditions are always complied with in this country.

As regards its danger in use, there is practically none, whether it is used for motor starting, car lighting, or oxy-acetylene welding. There are some thousands of feet used in this country daily and I have never heard of a single serious accident. Its use abroad is much greater than in this country and cylinders are filled to a much higher pressure.

I have just returned from a trip to America, where I visited a firm who have over 600,000 cylinders in circulation, and a serious accident is unknown to them. I also saw some hundreds of cars fitted with acetylene engine starters. I never saw one fail to start the engine when required, and could not find that a car or engine had ever been injured by their use. I also saw the starter being manufactured by the thousand, and I can assure you that it is not the opinion in America that an acetylene engine starter is a passing phase.

I have no wish to disparage Mr. Edge's experimental work, as on the contrary, I consider it valuable, but the remark I have mentioned seemed somewhat unfortunate, and likely to damage the future of a very useful commodity, namely, compressed acetylene.

151, Victoria Street, Westminster. C. HODDLE.

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NEW COMPANIES REGISTERED.

Hansa Car and General Motor Co., Ltd., 1, Long Acre, W.C.—Capital £10,000, in 3,300 preference shares of £1 each and 13,400 ordinary shares of 10*s.* each. Acquiring business carried on by E. C. Burgoyne at 1, Long Acre, W.C., as Claude Burgoyne and Co. First directors: F. E. Morriss, H. Biezynski, W. Marsden-Hind, G. Campion, E. C. Burgoyne, M. Brooke and J. Sarna.

Prest-O-Lite, Ltd., 151, Victoria Street, Westminster.—Capital £100, in £1 shares. Manufacturers of and dealers in acetylene generators and appliances, and articles in connection with acetylene gas lighting, &c.

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ROUNDABOUT NOTES.

FOLLOWING on the recent announcement, that instructions had been given for the C.A.V. car lighting installation to be fitted to cars of H.M. King George V and of the late Emperor of Japan, comes the further information that Messrs. C. A. Vandervell and Co. have been instructed through their French agents to fit the C.A.V. dynamo electric-lighting installation on a new 40-h.p. car for the King of Spain. In addition, their agent for Holland, Mr. Byleveld, of Amsterdam, is now fitting a complete C.A.V. equipment to a new car for the Queen of Holland; while Messrs. Vandervell and Co. have also received an order for a similar set to be fitted to one of the latest cars of the Czar of Russia.

ONLY two Swift motor bicycles were entered for the A.C.U. Trials, but both came through the arduous tests and won gold medals.

FOR all Argyll cars the bodies are so designed that the control-levers are inside. Not only so, but, departing from standard practice, the makers—who do their own carriage work—transpose the levers, with the result that the emergency-brake lever is situated in a direct line with the right shoulder. As a result of this, application is materially simplified and instantaneously effective.

MR. FRED. J. GORDON, Director of Morris, Russell and Co., Ltd., of 6, Great Eastern Street, E.C., is leaving per s.s. "Lusitania" on September 28th for a business tour through Canada and the United States. Mr. Gordon is prepared to receive communications from manufacturers of cars and accessories who would like him to open up connections for them, especially from those desirous of cultivating the Canadian market.

MESSRS. J. BLAKE AND CO., 22, Rodney Street, Liverpool, who are sole agents for Lancashire, Cheshire, and North Wales for the Cadillac cars have, we are informed, taken over the Liverpool and district agency (including Ormskirk, Southport, and the Wirral Peninsular), for the F.I.A.T. cars.

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MR. J. S. CORDINGLEY, the well-known trader of Haslingden, has just sent on to the Deasy Motor Mfg. Co., Coventry, the following appreciation from the owner of a 14-20-h.p. Siddeley-Deasy:—"The car (after three months) has given me the most complete satisfaction in every respect and has been generally admired here. It is speedy, excellent on hills, economical on petrol and light on tyres. Should I ever require a more powerful car I should not pass the Deasy Co."

ONE of the features of the South Wales Hunters Show held at Carmarthen last week was the number of motor cars in attendance, and a great difficulty was experienced by many of the cars in getting on to the field owing to the soft ground. It was, however, specially noticed that those cars that were fitted with Stepney Road-Grip tyres on their back wheels without exception had no difficulty whatever. A few motorists had to get out and fit their Parsons Chains which also answered the purpose well, but others had to resort to the good old rope bound round the tyre to enable them to get on the field.

IN the recent military aviation trials on Salisbury Plain, "Shell" motor spirit was used by all the aviators taking part.

MR. S. F. CODY'S biplane was fitted with a 120-h.p. Austro-Daimler engine when putting up its record performance in the War Office Trials, thus securing £5,000 in prizes. The engine was similar to that which is fitted to the Austro-Daimler cars, and during the whole of trials Vacuum Mobiloil was used.

WE understand that the Hon. Alan Boyle, youngest son of the Earl of Glasgow, has joined J. D. Macdonald and Co., Ltd., Queensferry Street, Edinburgh, Scottish agents for Vauxhall and Palladium cars. Before taking up aviation Mr. Boyle, who received R.Ae.C. pilot's certificate No. 13, was formerly with the Daimler Co., so that he is not new to the trade. Since his accident at the Bournemouth meeting in July, 1910, he has been travelling abroad. The combination—Mr. J. D. Macdonald, Mr. Alan Boyle and Mr. J. Wintle—should go to very materially strengthen the hold this firm is getting of the Scottish public.

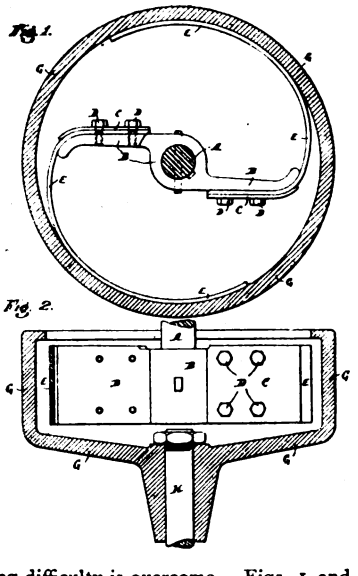
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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

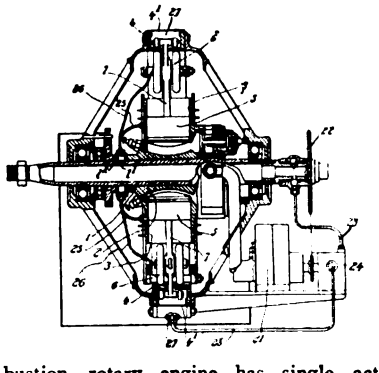
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

11,308. May 13th, 1912. **An Improved Friction Clutch.** A. R. Robertson, 98, Dundas Street, Kingston, Glasgow.—Hitherto in centrifugal clutches of the type which automatically engages as the driving member increases in speed, or where the clutch is engaged when the motor is at full speed and gradually accelerates the driven member, the engaging parts, which are under the influence of centrifugal action have, in most cases, to be very light in weight, because the speed is in most cases very high, and if these parts were heavy they would grip too keenly and tend to accelerate the speed of the driven member too rapidly. This invention has for its object the construction of a clutch in which one member is flexible, and the fore-



going difficulty is overcome. Figs. 1 and 2 are sectional plan and sectional elevation respectively. The driving shaft, A, has secured upon its end a double-armed spider, B, to the arms of which are secured by clamping plates, C, and screw bolts, D, two flexible members, E. The driven member consists of a drum, G, fixed upon the driven or secondary shaft, H, and with the inner periphery of which the free ends of the flexible members, E, engage under the outward thrust of centrifugal force due to rotation of the primary shaft, A, with its spider, B. The taking up of the drive is gradual, not only because of the comparatively light weight of the members, E, but also because of the fact that the pull of the drive (which is, of course, in clockwise direction in Fig. 1) reacts to some extent against centrifugal force—the nearer to the axis the members, E are fixed at their inner ends, and the less their length the greater becomes this effect. The free ends of the flexible members may be loaded in any desired manner to increase their adhesion to the drum under centrifugal force.—August 14th, 1912.

17,901. August 5th, 1911. Date claimed under International Convention January 19th, 1911. **Improvements in or relating to Rotary Explosion Engines.** E. J. Conill, 1, rue de Presbourg, Paris.—This invention relates to lubrication systems for rotating cylinder internal combustion engines of the kind having the cylinder covers nearest the axis of rotation. An annular collector is arranged surrounding the cylinders and communicating at its lowest point with a conduit by which the lubricating oil is led back to the pump to be again fed to the cylinders and other working parts. The drawing is a longitudinal section. The internal com-



bustion rotary engine has single acting cylinders, 3, having their closed ends, 2, adjacent the axis or shaft, 1, of the engine, and with pistons, 5, bearing by means of connecting rods, 7, and rollers, 6, against an eccentric or cam, 4, suitable for forming the rolling track for the rollers. With each cylinder, 3, is combined a pipe, 25, for supplying the lubricant or oil to be used, and it is introduced at a point of the cylinder which is never uncovered by the corresponding piston, 5. The part, 4, is arranged so that, owing to the cheeks, 4^1, connected to it, it forms a collector for the lubricant. The hollow shaft, 1, has a channel or chamber leading to a general supply chamber. The shaft is surrounded, along a certain portion of its length, where holes, 1^1, are provided, by an annular casing, 1^2, to which are connected both the pipes, 25, and pipes, 26, which are to be utilised for the lubrication of parts other than the cylinders and the pistons. A feed pump, 24, is connected to the supply chamber by a pipe, 23, and a feeder, 22, for ensuring the feed in spite of the rotation of the spindle, 1. The pump, 24, is connected by means of a suction pipe, 28, to the lowest point, 27, of the oil collector, 4, 4^1. The oil supplied to the cylinders through the pipe, 25, cannot enter the respective explosion chambers of the same, but is projected by centrifugal force into the collector, 4, 4^1, whence it is brought by the pipe, 28, pump, 24, pipe, 23, and the feeder, 22, to the chamber in the hollow shaft, 1.—August 14th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published September 5th, 1912.

7,818. A. RAMSAY. Differential mechanism.
11,230. C. H. T. ALSTON AND P. T. HOUSTON. I.C. engines.
11,292. C. F. KETTERING. Ignition systems.
13,221. F. SMITH, — WHITELY AND W. SPENCER. Cooling of cylinders.
18,246. T. L. BAINBRIDGE. Carburettors.
18,252. W. J. THOMSON. I.C. engines.
18,618. DAIMLER MOTOREN GES. Lubricant pumps.
19,800. F. A. L. JOHNSON. Sparking-plugs.
21,494. G. J. DALLISON. Starting-handles.
21,583. J. E. GRAHAM AND G. WALLACE. Resilient wheel.
21,659. H. WEBBER. Cooling of cylinders.
22,267. E. R. MOON AND A. H. BURNAND. Valves.
22,677. W. W. SMITH. Lubricators.
22,798. F. BECK. Rotary explosion motor.
22,937. W. L. MIGGETT. Driving-gear.
23,556. W. STARLEY. Wind-screens.
24,508. E. W. COLEMAN AND — RAWLINGS. Starting I.C. engines.
24,628. F. G. LOSEY. I.C. engines.

Applied for in 1912.

Published September 5th, 1912.

693. S. H. COPE AND WARLAND DUAL RIM CO. Road wheels.
2,160. E. S. LOUIS. Transmission devices.
2,467. C. H. STEVENS. Sparking-plug.
3,320. G. CAUVRY AND L. SALEL. Elastic wheels.
4,167. GASMOTOREN FABRIK DEUTZ. Ignition system.
5,546. W. E. PEARSON. Rotary I.C. engines.
5,673. E. McD. DEAL AND OTHERS. Wheels.
8,093. C. P. RÉSEMANN. Metal tyre-tread.
9,648. H. M. STRAWN AND H. R. SAUNDERS. Spring wheels.
10,205. W. BLACK. Resilient wheels.
13,539. MARQUIS G. FOSSI. Pneumatic wheel.
15,560. T. H. HOLROYD. Wheels.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 610. (No. 37, Vol. XVII.)] SEPTEMBER 14, 1912. [Weekly, Price 3d. Post Free, 3½d.



BRITISH INTERNATIONAL CUP FOR MOTOR BOATS.—Mr. T. O. M. Sopwith at the wheel of "Maple Leaf IV," with which he won the British International Trophy from America last week on behalf of Great Britain.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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44, ST. MARTIN'S LANE, LONDON, W.C.
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Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

	PENNY EDITION. 6 months.	1 year.		ART EDITION. 6 months.	1 year.
	s. d	s. d.		s. d.	s. d.
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Remittances.

Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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For the "Auto." Directory to Makers of Cars and Accessories see pages xviii to xxii.

Passing Events

Bringing Back the Ashes.

After sojourning for half a dozen years in America, the British International Cup is returning to this country. By reason of the victory of "Maple Leaf IV," the trophy which was wrested from us by "Dixie" in 1906 has at last been regained by a British boat, although we have again run a very narrow risk of yet another defeat at the hands of our Transatlantic cousins. Indeed, had it not been for the alteration in the rules of the contest, which came into operation last year, and under which it is necessary for the winning team to score two wins, the cup would have remained in New York for at least another year. Unquestionably, the new rule is a good one, for it does away with a good deal of the disability of sheer hard luck such as fell to the lot of "Maple Leaf IV" in the first race of this year's series. On the day before the race she carried away her rudder, and the time between the accident and the race itself was not sufficient to admit of a proper repair being carried out. Thus, although indisputably the fastest boat taking part in the races, she was unable to do herself justice, and met with an unmerited beating. However, by the time the second and third races were due for decision the needful repairs had been completed, and she fully justified the confidence of her builder and owner by winning handsomely from the American boats.

Unfortunately, motor boating does not appeal very largely to the people of these islands, principally because although we have an extensive seaboard, the waters which are really suitable for what may be called popular motor boating are few and comparatively remote. Southampton, the Crouch and the Clyde estuary are the only places round the whole coast which provide the necessary facilities for developing the sport in the manner best calculated to bring home to even the dwellers by the sea the full possibilities of the power craft, and for that reason the International Cup races have never attained to any great importance in the eyes of any but those directly associated with the marine motor movement. Nevertheless, we do not hesitate to describe the long-due British victory as a notable one, and one which vindicates the British boat-builder and marine motor engineer from the real or supposed stigma under which repeated American victory has laid them. We are so accustomed to hear the despairing cry that, as a nation, we are effete, and that anyone who cares to try can easily beat us at any of the sports in which we were once unchallenged in our supremacy, that this demonstration of efficiency in marine motoring is extremely welcome.

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The Methods of our Fathers.

If any argument further than those which have been already adduced were needed to emphasise the need for the constitution of a central road authority with plenary powers over construction, it is surely supplied by the latest experiment of the Holborn Borough Council in relaying High Holborn with granite setts in place of the asphalte paving which has hitherto carried the traffic and carried it, on the whole, satisfactorily. When the intentions of the Council were first made known, something of an outcry was raised by those whose business premises lie along the line of what we have called an experiment. The principal objection was, naturally, to the increased noise of the traffic which was to be apprehended from the reversion to the road-making methods of our fathers. The reply of the Council's officers was that laid as it was intended to lay the granite paving the increase in noise would be negligible, while the saving in cost of upkeep would more than compensate for so slight a drawback. The work is now nearing completion, and a short section of the granite-paved road was opened for traffic early in the present week. We happened to be crossing from

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Southampton Row to Kingsway just after the new section was opened, and paused to note the effect of the change. So far from the noise being only slightly increased, iron-tyred vehicles, which were comparatively silent on the asphalte, were simply deafening in the noise created the moment they passed on to the setts. What High Holborn will be like when the whole roadway is opened and the heavy traffic takes its wonted route scarcely bears thinking about. For our part we are devoutly thankful that the offices of AUTO. are fairly remote from that thoroughfare.

It is difficult to understand the real motives that have impelled the Holborn Council to act as they have done. The ground alleged is the saving in upkeep costs, but if we are not mistaken all the records of London road authorities go to show that the cheapest form of road paving is that laid with wood blocks on a good concrete foundation. It wears excellently, it is practically silent and is easily kept clean. But even supposing that there does happen to be a small margin in favour of the setts—and at most it can only be a very small one—surely there are other considerations to be taken into account besides that of cost. But the ways of these local bodies are past finding out!

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A Matter of Simple Justice.

In a few weeks from now the suburban councils of London are to meet in congress to consider what is to be done in the way of meeting the extra expense of the upkeep of their roads consequent upon the growth of heavy motor traffic in general and the continual increase in the motor 'bus service in particular. Our contemporary, the *Evening News*, deals with this question in a singularly able article published in a recent issue, and points out that in central London, where wood and asphalte paving is general, the heavy motor traffic does no more than slightly affect the concrete foundation, and, taking into consideration the lessened quantity of street refuse which must be removed, the road costs must be less than they were a year or two ago. In the outer ring, however, it is far different. The roads there have no concrete foundations, but simply a bottom of brick and rubble, with a surface of granite bound with chippings and road grit. There are roads in the suburbs which have needed re-surfacing during this wet summer season after a single month of motor 'bus traffic over them, and the problem of road maintenance, based upon pre-omnibus service estimates, has become one of acute anxiety to road surveyors.

As our contemporary points out, the motor 'bus service supplies a public want, and it is of a permanent character. If the roads are unable to stand the strain of the heavy traffic, then they must be made suitable to bear it. That involves extra expense, and the problem is where to obtain the necessary money. One way out would be to fall into line with the suggestions of the interested L.C.C. and impose a tax on the motor 'bus. But then the vehicle already pays to the revenue a sum of approximately £40 per annum in the shape of the petrol tax. In the aggregate, the motor 'bus companies pay over, under this tax, no less a sum than £100,000 a year—surely a heavy enough tax without seeking to increase the burden. Local rates are high enough in all conscience, and it is scarcely to be contemplated that the increased cost of the roads should be thrown upon the ratepayer alone. The *Evening News* makes the very practical suggestion that the petrol tax paid by the 'bus companies should be diverted from the coffers of the Road Board and applied in the shape of grants in aid to the upkeep of the outer London roads. There is only one point upon which we disagree with our contemporary. We entirely approve the suggestion that this £100,000 per annum should be paid over to the local road authorities whose roads suffer from the ravages of the traffic from which this revenue is derived, but not for *upkeep*. It is a measure of simple justice that it should be used for the primary purpose of putting the roads into a condition suitable for meeting the necessities of modern road traffic. That is to say, the money would be quite properly expended in providing a main surburban road with a proper foundation which would enable it to carry the heavy traffic, but it should certainly not be frittered away in patching and mending roads which can never stand up to their work without thoroughly re-making from top to bottom. We should be altogether in favour of devoting this money to re-making the suburban roads, and putting them into a fit state to carry the traffic which they are called upon to carry; but once properly re-made, the cost of keeping them in condition should once again become a local charge.

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A Danger of the Streets.

A correspondent of one of the morning papers calls attention to what he rightly describes as a danger of the streets—the long hours worked by the drivers of public service motor vehicles. Twelve hours, with intervals of but a few minutes for meals, is far too long a time for the driver of a motor omnibus to be at the wheel of his vehicle, especially under the traffic conditions that rule in the London streets. We are not aware that any accidents have been directly traceable to the overworking of drivers, but the potentialities are there just the same; and, in the interests of the public safety, we do not hesitate to say that if the omnibus companies are not inclined to alter the state of affairs, then there should be immediately formulated a Home Office Order compelling them to do so. An average of eight hours a day is certainly enough for any man to work under motor omnibus conditions. The work is not easy at its best; the continual starting and stopping imposes quite a severe physical strain on the driver, while his brain and nerves are on the stretch the whole time—he must be in a state of continual alertness all the time his vehicle is under way. To compel him to remain at his post when brain and body are in a state of exhaustion—as they must be long before his twelve hours of duty are at an end—is simply to put a premium on disaster, for which there is not the slightest justification. It cannot be defended even on the score of the expense involved in providing reliefs; for London motor 'bus

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enterprises are showing a fairly handsome return to their shareholders now, and there must be no cheeseparing in running costs at the expense of the public safety.

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Motor 'bus Traps in London.

It was an ingenious defence put forward by a motor 'bus driver, summoned for exceeding the speed-limit, in quoting the Local Government Board Regulation—that all omnibuses must be so geared that their highest speeds shall not be in excess of the maximum of twelve miles an hour. It did not work, however, and the knowing one was duly mulcted in a fine and costs. While we are all against the reckless driving of motor omnibuses or any other type of vehicle, we cannot say that we like these frequent prosecutions for exceeding the limit, for the reason we have so often advanced—that mere speed does not of necessity connote danger to the public. As a matter of fact, it is almost invariably the case that these prosecutions are brought for offences committed on the widest and clearest roads in London, just where a slight excess of speed over the legal maximum is perfectly safe. Therefore, we cannot but regard them as in the nature of police persecution of a type which is all too familiar to motorists as a class. By all means let us have anything in the nature of dangerous or reckless driving suppressed with a very firm hand indeed; but, at the same time, it is surely the case that it is not necessary to effect this end to prosecute and impose fines, often amounting to more than a whole week's wages, upon a class of men who are valuable and deserving public servants, and whose offences are at most of a technical order. We commend this point of view to the Commissioner of Police, who has certainly not shown himself to be anti-motor in his official acts.

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The Western Approach Road.

It looks as though some sort of move were to be made before long in the matter of the urgently required western approach road to London. As we recorded some weeks since, the Road Board's proposal for an entirely new road continuing from the end of the Cromwell Road to Brentford may, we fear, be regarded as dead. The alternative proposition is for a widening of King Street, Hammersmith, and of the bottle-necked High Street in Brentford, which, while not as effective for the purpose in view—the relief of the enormous volume of traffic coming into and leaving London by the main western approach—is much better than nothing at all. Mr. Burns recently made a tour of inspection of the districts affected by the two alternative proposals, and appears to have taken a lively personal interest in the question, for it is stated that in consequence of his action the whole matter of the suggested widening of High Street, Brentford, which the Road Board regarded as being inadvisable, is to be re-opened *de novo*. The Road Board has invited the Brentford Council to take part in a conference on the subject, at which it may be fairly assumed that both schemes—the widening of High Street and the alternative of an entirely new road—will be fully considered.

It seems to us to be a pity that local interests have proved too strong for the Road Board in its policy of providing London with a really worthy approach road on the western side. Parochial interests seldom take account of the future, and that is principally why London has been allowed to grow up in the manner which has made it a simple chaos of streets, without settled plan or thought for what is to come after. No doubt the widening works, which it is urged will provide a sufficient alternative to the Board's new road, will be adequate enough for the traffic which the road has to carry now; but what about ten years hence? If road traffic develops in its present ratio of increase—and there is every reason to believe that it will—then in a very few years the whole thing will have to come up for consideration again, and the new road constructed. But, as we have said, the parochial mind takes no stock of the future.

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The Motor Vehicle and the Public Health.

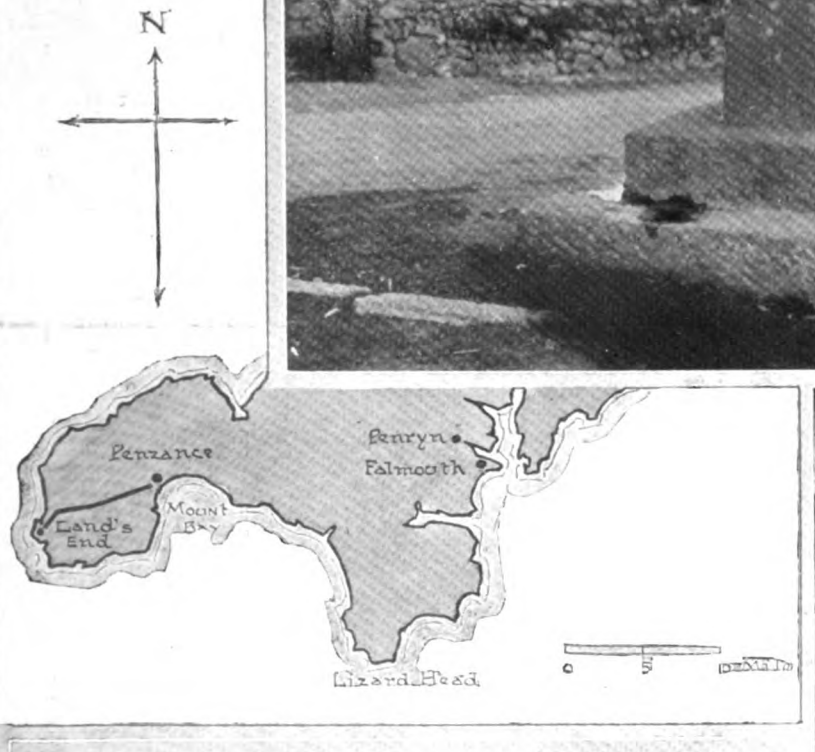
It is quite manifest to the person who knows his London well that the increasing vogue of the motor vehicle has made it a far and away cleaner city than it was even three or four years ago. The rapid disappearance of the dirty and insanitary horse is at the bottom of the better conditions, as we have always argued. Even the most purblind admirer of the "noble animal" must admit that there is something in this, but it is quite possible that he would do so grudgingly, in default of figures, and maintain that though there possibly was some improvement it is not so great as might be supposed, and that, even so, the apparent difference was possibly due to better methods of dealing with refuse. Some figures relating to the subject as it affects the City of Westminster have just been published, and throw a strong light upon the improvement which has taken place during the past seven years. They certainly provide the most eloquent testimony to the better conditions of the London streets brought about by the vogue of the motor car. The figures in question cover the period from 1905 to the present time, and show that the amount of street refuse (as distinct from house and trade refuse) dealt with has been reduced by more than fifty per cent. In 1905-6 the Westminster authorities collected 59,276 tons of street refuse, an average of 197 tons per diem. In 1911-12 the volume had fallen to 28,606 tons, or an average of but 95 tons daily. Moreover, the decrease has been progressive, each successive year showing a marked fall in the figures, corresponding with the continual growth of motor traction. As the horse continues to disappear from the streets, it is safe to assume the figures will continue to show a decrease until the irreducible minimum is reached—there must, in the nature of things, always be some amount of street refuse to be dealt with, apart from that inseparable from the use of archaic and insanitary traffic media. The effect on the public health of the disappearance of refuse from the streets must be very marked. It is impossible to offer statistical proof of this, but the proposition is so self-evident that it scarcely needs arguing.

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WITH THE CAMERA AND THE CAR.

ON THE ROAD BETWEEN PENZANCE AND LAND'S END ...







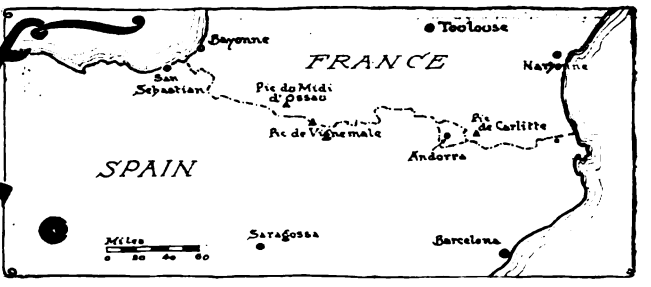




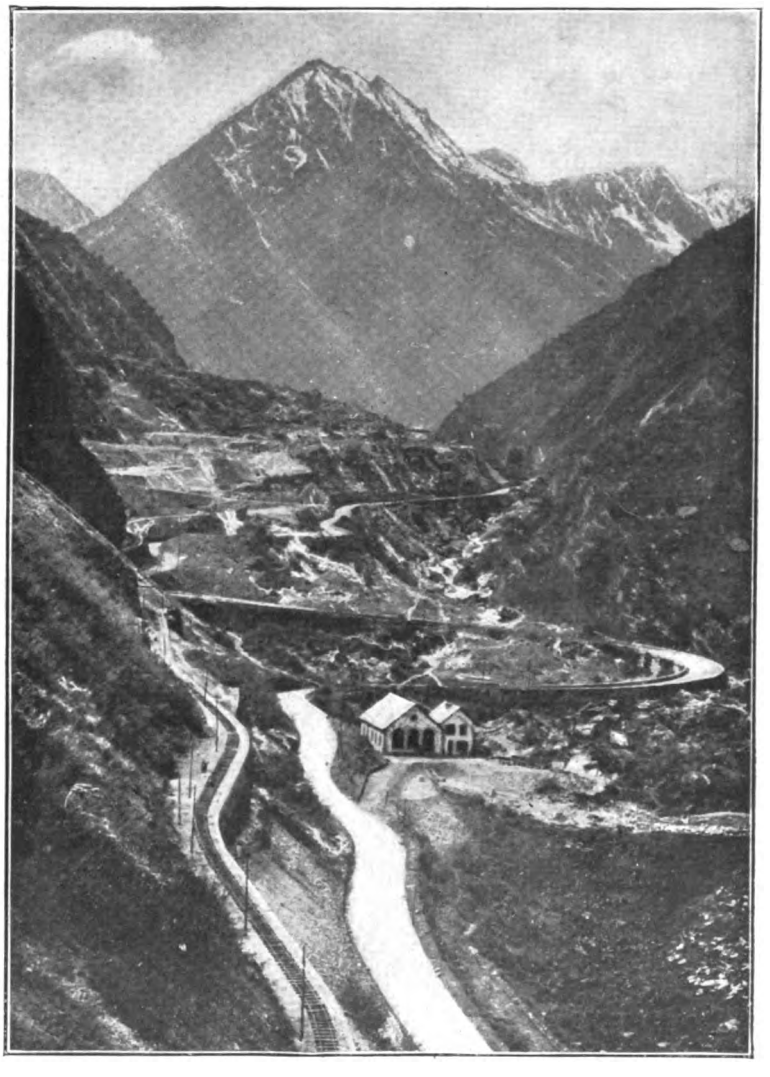
IN CORNWALL, BETWEEN PENZANCE AND LAND'S END.—At the top, one of the many ancient crosses so frequently to be found at Cornish cross-roads; in the centre the old cross in the Marrab Gardens at Penzance that used to stand in the Market Place, and below a typical Cornish stile, being really nothing but a series of stone steps which are far too often made up of broken wayside crosses.

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Passes of the Pyrenees



AMONG the many thousands who use their cars, a few, such a very few, are at pains to place nearer within the possession of others the good things that come to them from their own opportunities. Mr. C. L. Freeston, F.R.G.S., is among the interesting minority who work for the apotheosis of the automobile by persistently reducing it to its incidental character as an accessory to a more important purpose than mere motoring. Mr. Freeston loves the high places of the world's anatomy, but unlike the Alpine tourist of old he prefers to view the crags and precipices alike from some midway halt that is reasonably accessible by the aid of the car. In the Alps, he has gone where comparatively few motorists have gone, and in the Pyrenees he has taken his car over passes that are seldom visited by other than the inhabitants of the villages in the vicinity. And the result of this last journey of his to the Pyrenees, which after all was no more than anyone of us might have made, had we the initiative and desire, is a new book, the "Passes of the Pyrenees," a book which, like the "Highroads of the Alps," is an invaluable companion no less than a reliable guide to the traveller who would make his own way by road in the mountain range that separates France from Spain.

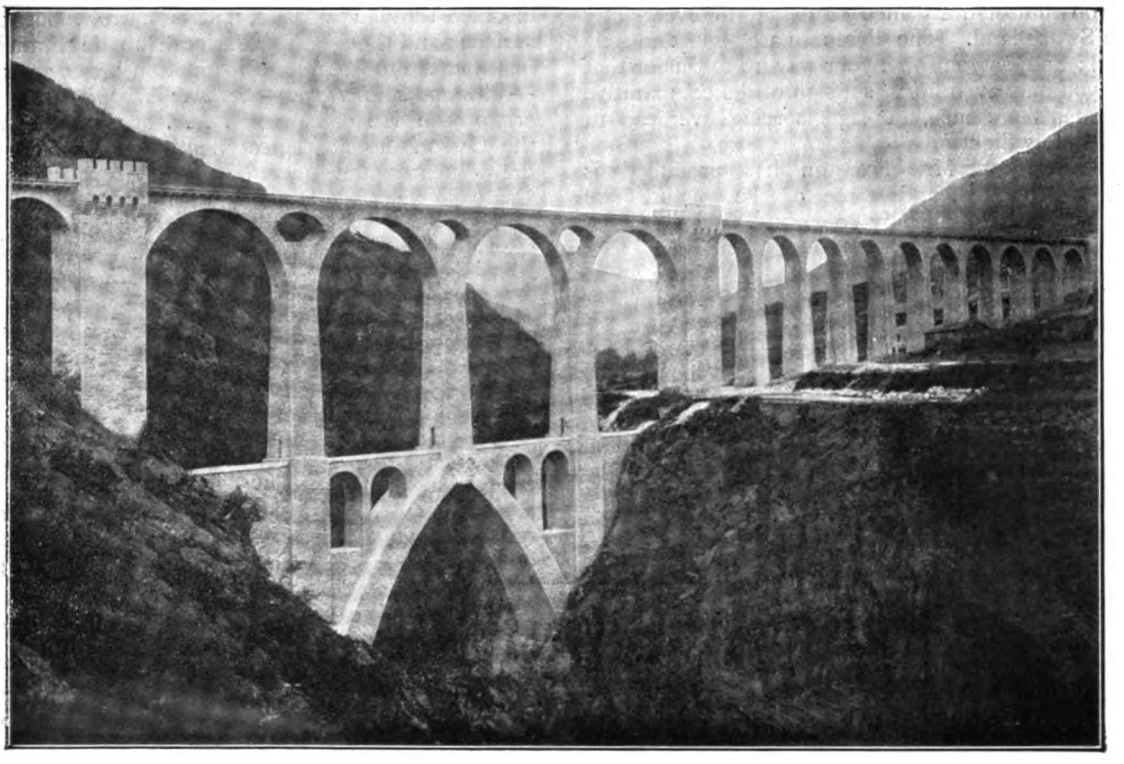


THE PASSES OF THE PYRENEES.—La Montee de Limacon

Apart from being unique as a tome of original information—for the orthodox guide book gives practically nothing of what Mr. Freeston's book so fully contains, since their point of view is essentially that of the tourist who goes by train—the "Passes of the Pyrenees" is undeniably interesting. It is not, perhaps, the sort of literature with which one would beguile the idle hour at Margate by the sea, but it is, without doubt, the book for the motorist who wants to have a summer holiday a little out of the ordinary and a little refreshing withal. Summer in the South of France, you exclaim, refreshing? Well, of course, each to his taste. But, listen to what Mr. Freeston has to say on the subject before you so airily waive aside the suggestion. "Summer, not winter, is the time for motoring in the Pyrenees. The late autumn is subject to the disabilities that road repairing is in progress and that the weather is uncertain. Winter, of course, means that the roads of any appreciable altitude are snowbound; while the Pyrenean spring is brief and almost invariably unsatisfactory as regards weather. These facts, notwithstanding, the majority of British automobilists who have done any motoring at all within measurable distance of the Pyrenean ranges have done so in conjunction with a journey to or from the Riviera. My whole contention, however, is that this is a false conception of the situation, and that one might just as well regard the Alps as unsuitable for summer travel because numbers of people go to various well-known resorts for winter sports."

And so, you see, the summer—when the clerk of the weather favours us with any semblance of sunshine—is

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THE PASSES OF THE PYRENEES.—Pont Sejournet.

the time to set forth for the happy hunting ground in the north of Spain, there to meet with "kindliness from the people, especially in the Western and Basses-Pyrenees, moderate charges at the ordinary town hotels, as compared with the larger establishments in the fashionable resorts; the charms and even splendours of the scenery; and, above all, the delightful remoteness of many of the mountain routes. Nowhere will you find on



THE PASSES OF THE PYRENEES.—The Château de Lordat.

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the upper heights of the passes a huge hotel such as has a place on almost every high road and in every lofty valley in Switzerland. The Pyrenees are almost entirely unspoiled; and, as you forge your way up to this or that summit, you may even find, as a sign of the comparative rarity of man's presence, an eagle soaring overhead in slow and stately flight."

The book that Mr. Freeston has produced is beautifully illustrated, and three of the pictures we reproduce, by the courtesy of the publishers, as examples of the many others that it contains. Here is what the author has to say of the scenes they depict, firstly of La Montee de Limacon, "the mountain which closes in the scene is the Pic Peguere, which stands immediately behind Cauterets. The place where this beautiful piece of road engineering occurs is variously known as La Montee de Limacon and Les Colimacons.

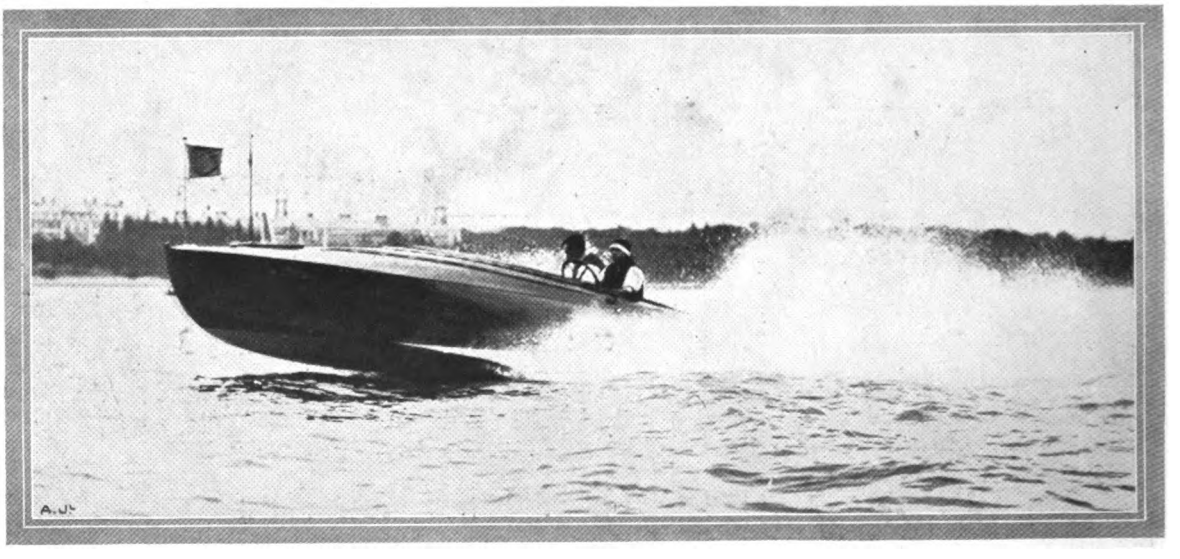
"Continuing to ascend the narrow valley between wooded slopes, the road passes the little inn of Calypso, and in a very short time reaches Cauterets itself. Though a wide ravine has by now widened out into a miniature plain, the town of Cauterets seems barely able to dispose itself between the mountain slopes on either side, and it presents a spectacle of a compact mass of buildings with no apparent room for expansion. The resources of the place are almost unrivalled in the Pyrenees . . . . The summer diversions are manifold . . . . with all these delights at command, who would not visit Cauterets?"

And, again, of the Pont Sejournet. "Beyond Fontpedrouse a particularly striking railway bridge comes into view, the Viaduc Sejournet, so called after the name of its constructor. It stands at no less than 213 ft. above the Têt, and is composed of sixteen granite arches with a total length of 778 ft.; but the illustration herewith shows the interesting way in which the superstructure is supported in the ravine itself. The line of railway which this viaduct carries is the newest and, at the same time, the highest in France, and runs from Mont Louis to Perpignan."

Or, take the Château de Lordat, which can be reached from Quillan. "At the very outset a magnificent prospect unfolds itself ahead . . . . the road passes in the first instance through a wood, and is narrow, but of good surface; and though the Touring Club de France notice board at the top bears the inscription '*Route tres Etroite —Tournants Brusques—Descente Rapide*' the warning errs on the side of caution . . . . at first the valley of the Cassou lies at a great depth below, but gradually draws nearer and nearer. . . . . A ruined castle—the Château de Lordat—may be noted when nearing Luzenac-Garanau, and suddenly one may notice also an object moving through the air, which proves to be a trolley running on wires between a distant talc mine, on a neighbouring hill, and a factory in the valley."

One of the most interesting chapters in Mr. Freeston's book is that devoted to the highest road in the Pyrenees. "In a remote corner of the Pyrenees, just west of the Col de Puymorens, lies the little Republic of Angorra, the quaintest and smallest of European States. There is no spot within touch of civilisation which has been less influenced by modern developments, and to all intents and purposes it is a world unto itself. Railways it knows not, and until recently it has been virtually without roads, communication with France or Spain having been effected by mule paths only. Now, however, a carriage road has been constructed between L'Hospitalet and Soldeu. This road was only opened in August 1911 . . . . it ascends, indeed, to an altitude of no less than 8,022 ft. on the Col de Fray-Miguel, and thus eclipses by a considerable margin the Col de Tourmalet itself."

It has been truly said "a country cannot be described; each individual sees and admires according to his own taste." Within the limits thereby imposed, however, Mr. Freeston succeeds uncommonly well with his book on the Pyrenees, and what it lacks in description, which at the most is no more than a flowery verbosity hiding the truth, it makes up for with its inspiriting call for others to visit the place itself, and in an unobtrusive way it brings each chapter to a conclusion with a neat little table of itineraries, distances, and altitudes which has become an excellent feature of this author's treatment of his subject.



The Marquis of Anglesey's "Mona" which was second to "Maple Leaf IV" in the British International Trophy Race in America last week.

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DYNAMO LIGHTING SETS.—I.

Introduction.

THE three chief members of a dynamo lighting set for cars, as everyone probably knows, are :—First, a machine for generating the electric current, usually run from the engine or transmission gear ; second, a set of accumulators for storing the current against the time when the dynamo is not running ; and third, the lamps for converting the electricity into light.

There have always been two great and distinct difficulties in designing a dynamo lighting set. These are, (a) to design an efficient means of avoiding the ill effects of excessive engine revolutions, which being ordinarily productive of very high voltage (electric pressure) are liable to destroy the lamp filaments, and (b) to design a device for switching off the dynamo from the accumulators when the engine revolutions are abnormally low, in order to stop the waste of current that otherwise takes place through the short circuiting of the battery by the relatively inert armature coil.

It is chiefly in the manner of overcoming these difficulties that the various car lighting sets now on the market differ from one another, and in the following descriptions special attention is given to these points.

Taking the machines collectively it will be found that they divide themselves into various classes, the most important categories being those based on the method of neutralising excessive revolutions. There are two main principles concerned in this matter, one being the regulation of the dynamo speed by mechanical means such as slipping belts or mechanical centrifugal governors, the other being the regulation of the strength of the electro magnets of the dynamo, by means of some special neutralising winding or by some movement of the brushes designed to bring about a weakening of the magnetic effect.

The factors that primarily contribute to the voltage that the dynamo produces are revolutions and magnetic strength, and in many of the machines ordinarily employed, the magnetism is not permanent, as is the case with magnetos, but is built up within the machine by the passage of its electric current round the magnet coils. Thus, the increase in revolutions brings about an increase in magnetism, and so there is a cumulative effect that is very likely to lead to excessive values unless either the revolutions or the magnetic rise accompanying them is checked when it reaches some predetermined value.

Although some mechanical method of regulating speed may appear to have the merit of simplicity at first sight, nevertheless it is in connection with the voltage regulation by magnetic control that the cleverest work has been done in this field of design, and some of the car lighting dynamos now on the market are exceptionally ingenious.

Unfortunately, however, full appreciation of the points involved necessarily assumes some degree of technical knowledge on the part of the reader. In the brief descriptions that follow, however, we have endeavoured to lay bare the crucial points in such terms as may readily be understood by all, and in any case the whole subject of electric light for cars is one of such interest and importance just now that we have no doubt all our readers will avail themselves of this opportunity of becoming *au fait* with the characteristics of the machines that they are so soon to use.

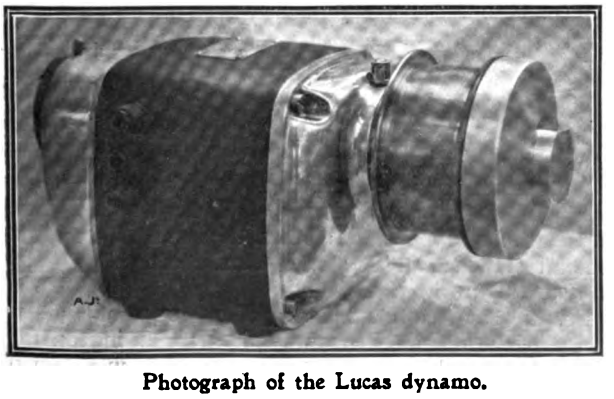
THE LUCAS.

THIS set, essentially simple in character, is made by Messrs. Joseph Lucas, Ltd., of Birmingham, and is suitable for the first of these descriptions in that the mechanical action of the slipping clutch will likely be more quickly grasped than would be the case with electrical contrivances such as extra brushes, windings or resistances.

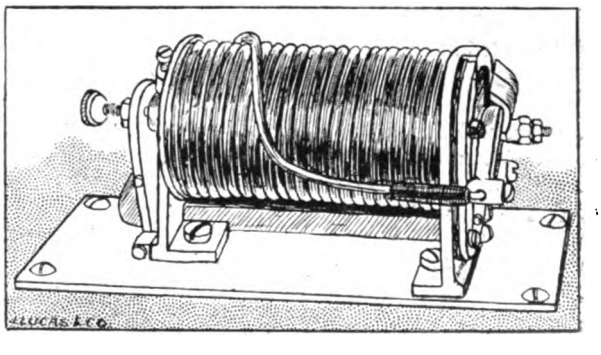
The dynamo is self-contained, including the output control, which, as just stated, consists of a form of clutch made to slip by centrifugal force at a set speed. A glance at the illustration of the dynamo will show that its external appearance is somewhat different from that of the majority of such machines. This is due to the fact that a single shunt-wound field magnet is used in place of the usual double or four-pole winding. A drum armature, wound with double silk covered wire, is provided, and it is supported on Hoffmann ball bearings at either end. The brushes are of Morganite, and amply sufficient to carry the full current without sparking. The commutator, on which the brushes press, consists of sixteen segments of copper, insulated with mica.

For producing the necessary magnetism of the field magnet, the field or shunt-coil is called into use. In action this is claimed to be very economical as regards its consumption of current, and when the dynamo is not charging, the shunt is disconnected, so that the armature then runs with complete absence of magnetic drag.

The clutch is of the internal-cone type, with a lining of

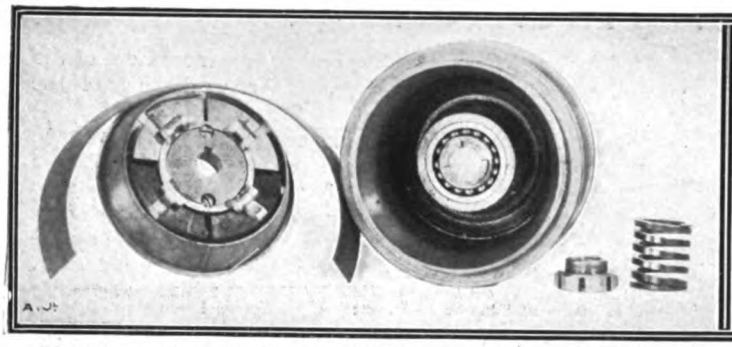


Photograph of the Lucas dynamo.

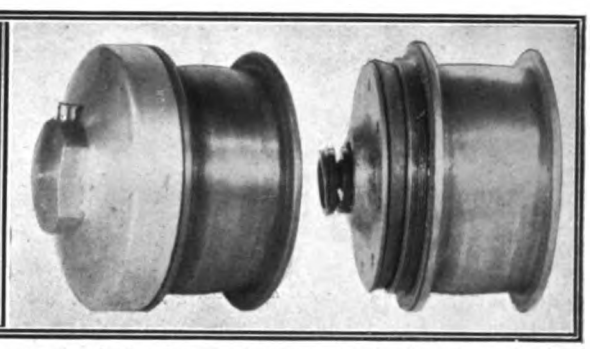


Sketch of the magnetic cut-out of the Lucas lighting set.

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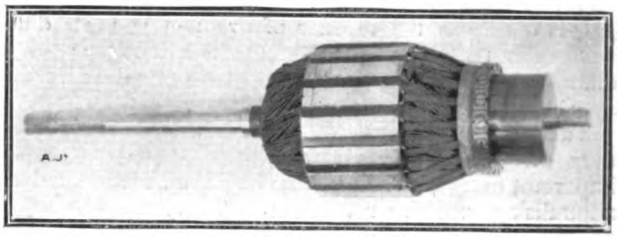
The Lucas dynamo slipping clutch opened for inspection, showing the fibre lining attached by a single pin to the inner member.



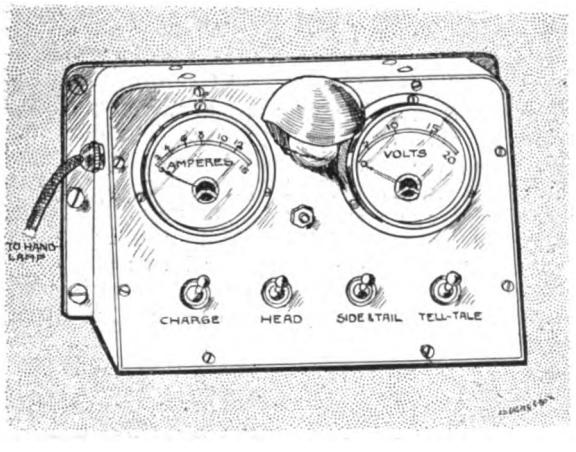
Two views of the Lucas dynamo clutch, showing on the right the adjustable spring which forces the cones into contact, and on the left the assembled complete mechanism.

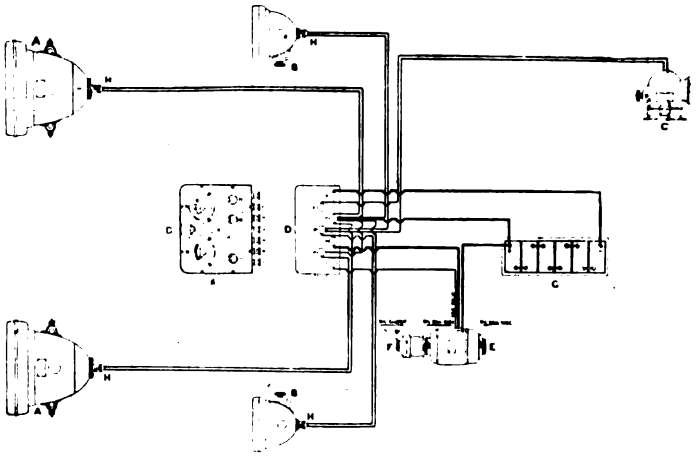
tough fibre held between the halves and pinned to the central member. A strong spring, adjustable as to its pressure, forces the cones into close contact until the desired slipping-speed is reached, when centrifugal governors, acting by leverage on the internal member, push it outwards against the pressure of the spring, and allow slipping to take place. Light machine oil is recommended for the lubrication of the clutch. Ordinary cylinder oil gives fair results, but owing to its greater density, causes a slight increase in the speed at which the desired slip first occurs, especially when starting-up in cold weather. Lucas spring-lid lubricators are conveniently placed for the oiling of all parts requiring it. The weight of the 100-watt dynamo is 25 lbs., and that of the 200-watt machine 35 lbs., complete in both cases, and the prices are £16 and £18 10s. respectively.

The switch-board, which weighs about 5 lbs., is carried on the dash, contains the cut-out, which we illustrate by a sketch, and has mounted on its face the several switches, volt- and ammeters, and a tell-tale for the rear light. A plug adaptor for a hand-lamp is fitted at the side. The cut-out is of a simple magnetic type, quite reliable, and with large contact areas to the laminated brush used for making the connection. This brush is placed at the opposite end of the winding from the armature. The arrangement of the switches on the face of the board is very simple, and is well shown in the sketch. A separate switch is provided for the switch-board lamp, as, if it were permanently alight, it could not fulfil its function as a tell-tale, and in addition to consuming more current it is thought that it would be liable to distract the driver's attention. When the switch on the extreme right-hand is turned off, therefore, the tell-tale bulb is out, unless or until the rear light fails through the breakage of the bulb or faulty wiring, when a certain indication is given by the lighting up of the board lamp. The ammeter is always in circuit when the left-hand switch is down, while the small press button in the centre of the board connects up the volt meter when desired. The inspection-lamp attachment is supplied with 16 ft. of insulated cable, at the end of which is a wooden handle carrying a bulb, protected by a wire cage.



The 16-pole armature of the Lucas dynamo.





The switchboard of the Lucas lighting set, and on the right wiring diagram of the Lucas lighting set. A, head light; B side light; C, tail light; D, switch box; E, dynamo; F, clutch; G, battery; H, plug.

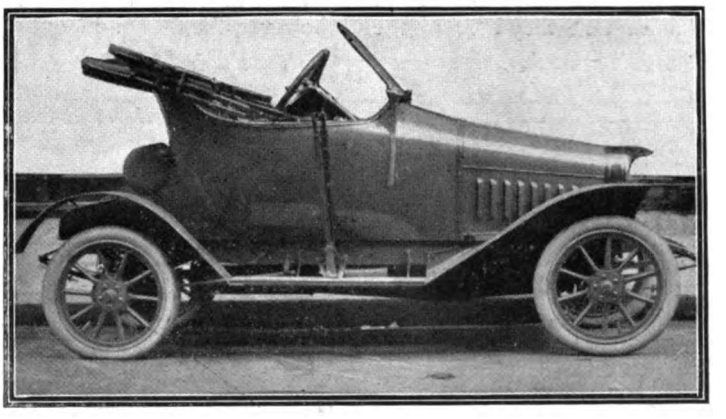
For the 200-watt set, a battery of 75 ampere hours is provided, the weight of the one suited for fitting on the dash or running-board being 66 lbs. complete in a stained and polished teak box.

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THE 10-14-H.P. M.A.F.

A REVIVAL OF AIR COOLING.

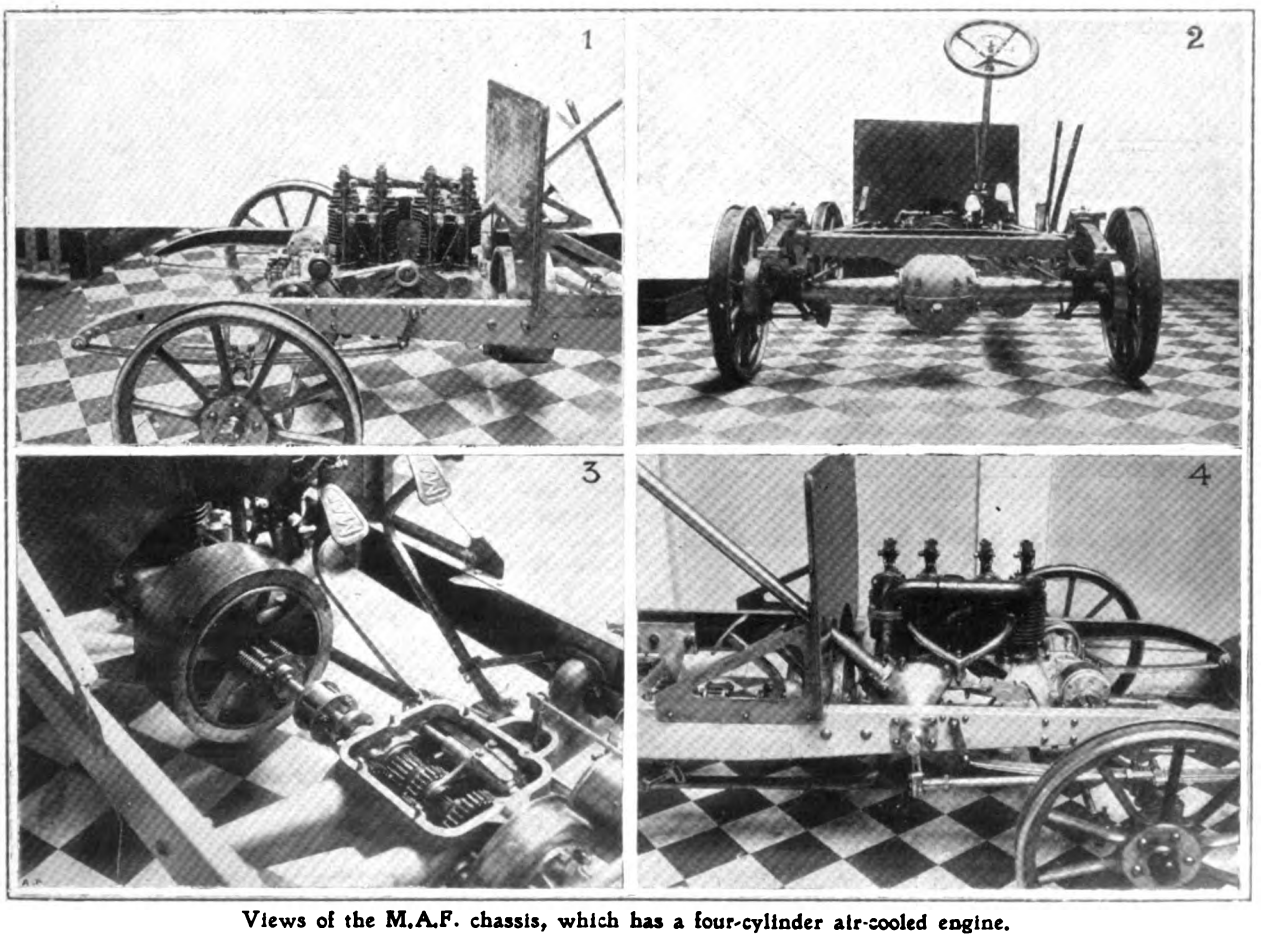
IN these days of small cars, which steadily diminish in their engine dimensions until we now hear that the cycle car is to be the vehicle of the future—when it shall have been made perfect enough for the present—it must have struck many readers of the AUTO. that the air-cooled motor car engine would be likely soon to loom above the horizon. Already, indeed, those who are interested have no further to go than Great Portland Street, where, at No. 118, on the premises of Messrs. Darby and Weber, they will find a small machine of no little promise, which should serve to interest them up to the point at which the desire to purchase assumes the dimensions of a temptation.



The 10-14-h.p. M.A.F., which has a four-cylinder air-cooled engine.

The 10-14-h.p. M.A.F. is a 4-cylinder car of modern up-to-date construction throughout, but differing only in this one essential, that its engine is air-cooled instead of being fitted with water-jackets. The cylinders are cast in pairs and are constantly subjected to the draught of a duplicate fan, which is mounted on a transverse shaft passing between the cylinders, where it is driven by a belt from a transverse shaft in front of the engine, which also drives the magneto. Thus, to the man in the street there is nothing in the world to indicate that the little car coming so smoothly and quietly towards him is in any way out of the ordinary, save that he will doubtless be impressed by its general good appearance.

There remains, therefore, only one question that the intending purchaser is likely to inquire, and that is the fundamental query, "Does it work?" We asked the agents themselves as much, and their reply was as simple and equally to the point, "Try it and see." Accordingly, we took it for a run of 250 miles, or a little more, and it certainly worked admirably. It consumed only six gallons of petrol for the whole journey, and yet it "hopped"

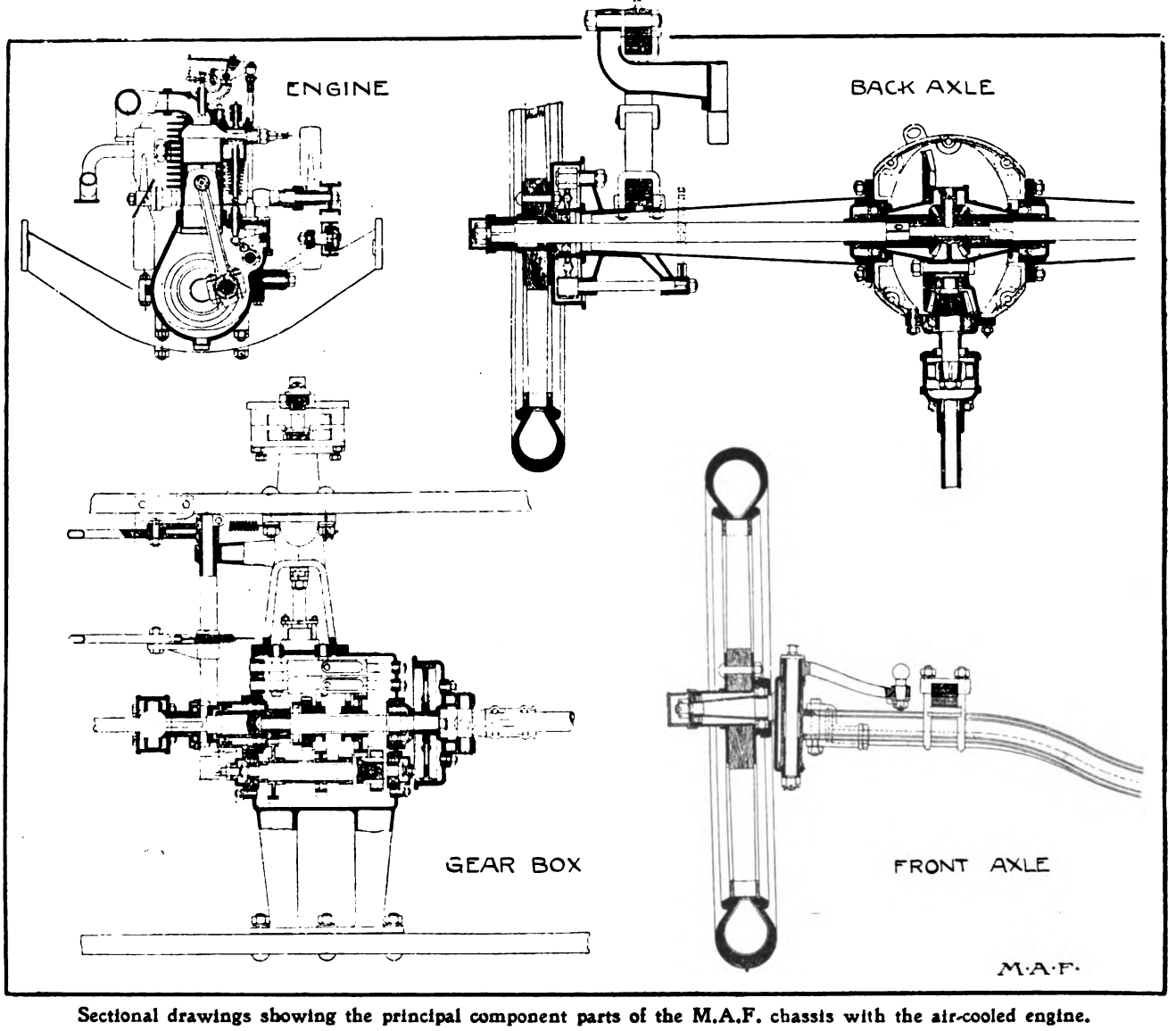


Views of the M.A.F. chassis, which has a four-cylinder air-cooled engine.

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along at well over 30 m.p.h., notwithstanding the fact that it only has a 66 by 90 mm. engine. From first to last, indeed, it would be difficult to find any cause for dissatisfaction in its behaviour; on the contrary, there was much that was a real source of pleasure.

On one point there is some reason to avoid an inference that seems to us likely to be made in connection with the M.A F. by those who have not actually seen it; wherefore, we particularly draw attention to the photographs of the chassis, and to the evidence that they bear to the exhaust-valve spring, and its attachment to the valve-spindle by a floating beam carried on a link, has quite an interest of its own, as also have the fan-shaft and the method of carrying the mudguards from the top brackets of the full elliptic springs. In the valve mechanism just mentioned, attention should naturally be drawn to the fact that the main object in view is to keep as much of it exposed to the air-draught as possible, the exhaust of an engine being, of course, the hottest part. Incidentally, however, the design in question facilitates accessibility,



Sectional drawings showing the principal component parts of the M.A.F. chassis with the air-cooled engine.

effect that the machine in question has every appearance of being a substantially-built and well-designed job. It would be a mistaken notion altogether to jump to the conclusion that because the M.A.F. has an air-cooled engine it is, therefore, an attempt to build either unduly lightly or very cheaply. On the contrary, the car, as a whole, is most carefully thought out from first to last, and it weighs 12 hundredweight into the bargain.

In addition to the photographs, we also publish a variety of drawings showing the constructive detail, likewise three sketches, which make clear some of the less usual features of design. For instance, the laminated permitting, as it does, the cylinder-head to be removed without disturbing the valve-gear.

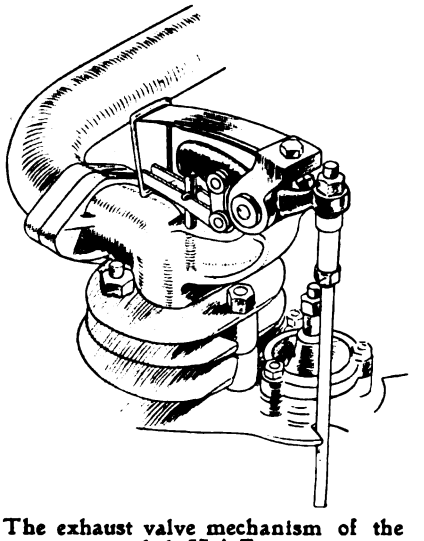
With regard to the fan, the especial point of interest is, of course, its unusual situation, being alongside the engine instead of in front. When the car is in motion there is a general straight-through draught, entering by the dummy radiator in front of the bonnet and finding air exit through the vane-shaped spokes of the fly-wheel. At rest or when moving slowly, however, the fans at either side of the engine induce a cross-draught through louvres in the bonnet. In order that this cross-current may harmonise with the main flow of air when the car is in

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motion, the louvres in the sides of the bonnet are set with their orifices pointing in different directions. Thus, the entry-side faces forward, while the exit faces backwards, so that a portion of the general flow takes a diagonal direction.

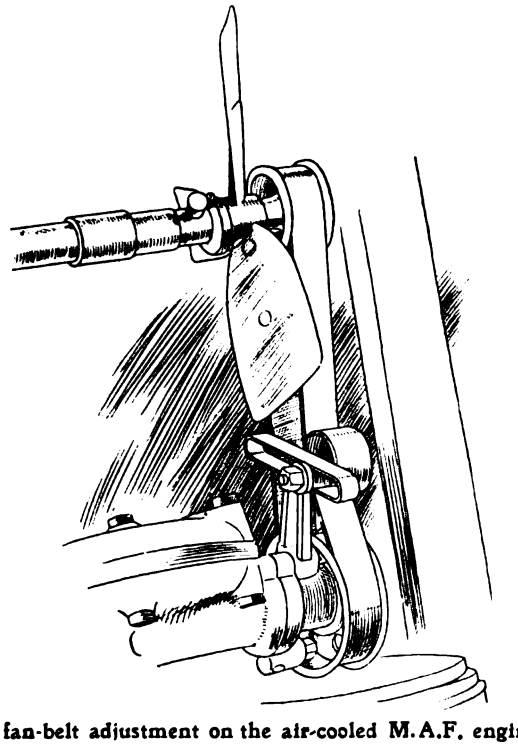
Of the other accessories to the engine, an uncommon feature is the presence of a Ruthart magneto, one of the neatest machines ever designed, which formed the subject of one of our special magneto articles some years ago. The carburettor is a simple single-jet float-feed device with an exhaust-heated mixing chamber. It is fed by gravity from a tank behind the seats.

Engine lubrication is also carried out in a very simple and straightforward manner. Oil is fed to the base-chamber by a chain-driven pump, contained in the oil-tank on the dashboard, and the distribution of the lubricant in the crank-case is effected by splash. Spoons are attached to the big-end bearings for this purpose. The crank-shaft itself, it is interesting to note, is carried on three ball bearings of very large size.

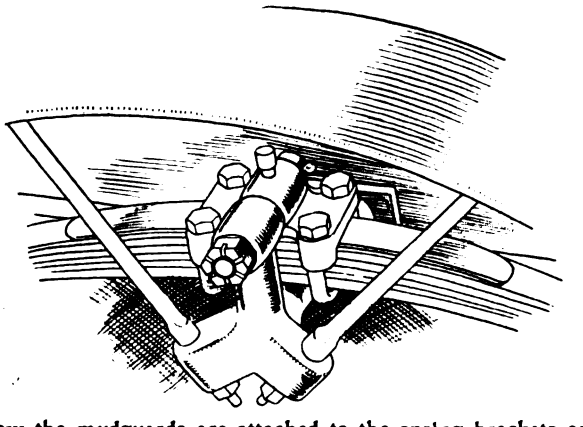


The exhaust valve mechanism of the air-cooled M.A.F. engine.

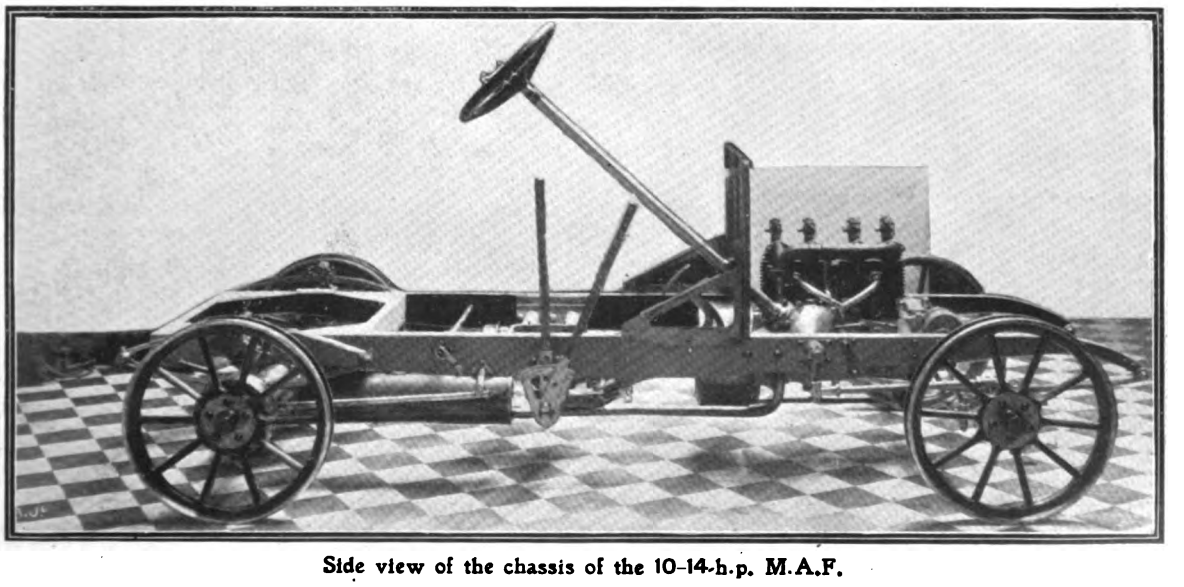
The transmission follows more closely conventional lines than the engine, and its most prominent feature is the ample proportion of all the working parts. A leather cone-clutch conveys the drive to the gear-box, and is more than usually accessible. The gear-box itself is cast integral with the three lugs that support it in the frame. It contains three speeds forward and a reverse, and is



The fan-belt adjustment on the air-cooled M.A.F. engine.



How the mudguards are attached to the spring brackets on the M.A.F. chassis.



Side view of the chassis of the 10-14-h.p. M.A.F.

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perfectly grease-proof, a feature to which we attach no small importance. On various occasions we have advocated the fitting of a vent-hole to gear-boxes as a prevention against loss of lubricant, and it is gratifying to see that the M.A.F. gear-box is so provided. But its makers have gone a step further in that direction.

In many gear-boxes the push-roads, which actuate the forks of the change-speed-gear more or less act as plungers of a pump, which at every movement forces out a small quantity of grease. In this instance, however, the push-rods in the ordinary sense have been dispensed with, and the sliding-gears are actuated by forks, which are attached to sleeves moving to and fro on fixed guides, as can be seen from our illustration as well as from the gear-box drawing. The locking of the gears being effected by flat steel springs, also visible in the illustration, which bear on small plungers snapping into notches of the guides.

Undoubtedly the finest piece of the transmission is the rear-axle, which for so small a car is remarkably strong, without, however, being unduly heavy. It forms the subject of one of our illustrations, and therefrom will be seen that it consists of a spherical centre-piece, which serves as a housing for the differential gear, and a pair of well-tapered steel sleeves. We had an opportunity of seeing one of these axles dismantled, and were surprised at the large size of all the gear wheels and bearings, and at the really fine workmanship exhibited throughout. The driving bevel, in addition to the ordinary ball bearing, is provided with a steady bearing of the same kind.

The suspension consists of full elliptic springs behind and half elliptic in front The former are carried on a hinge at the top, and the very neat bracket that supports this hinge and also forms the main support of the mud-guard-stays is illustrated in one of our sketches. As usual two independent sets of brakes are fitted. The steering is by bevel gear, and the connections and joints of all the steering rods are well worth close investigation, because, to our mind, they are far superior in design as well as construction to the articles we usually find in cars of this power and price.

M.A.F. cars can be obtained in various length of chassis, and fitted with different kinds of two and four-seater bodies, or as a light delivery van. The price for a two-seater with 700 by 80 mm. tyres is only £220 complete with hood screen and lamps.

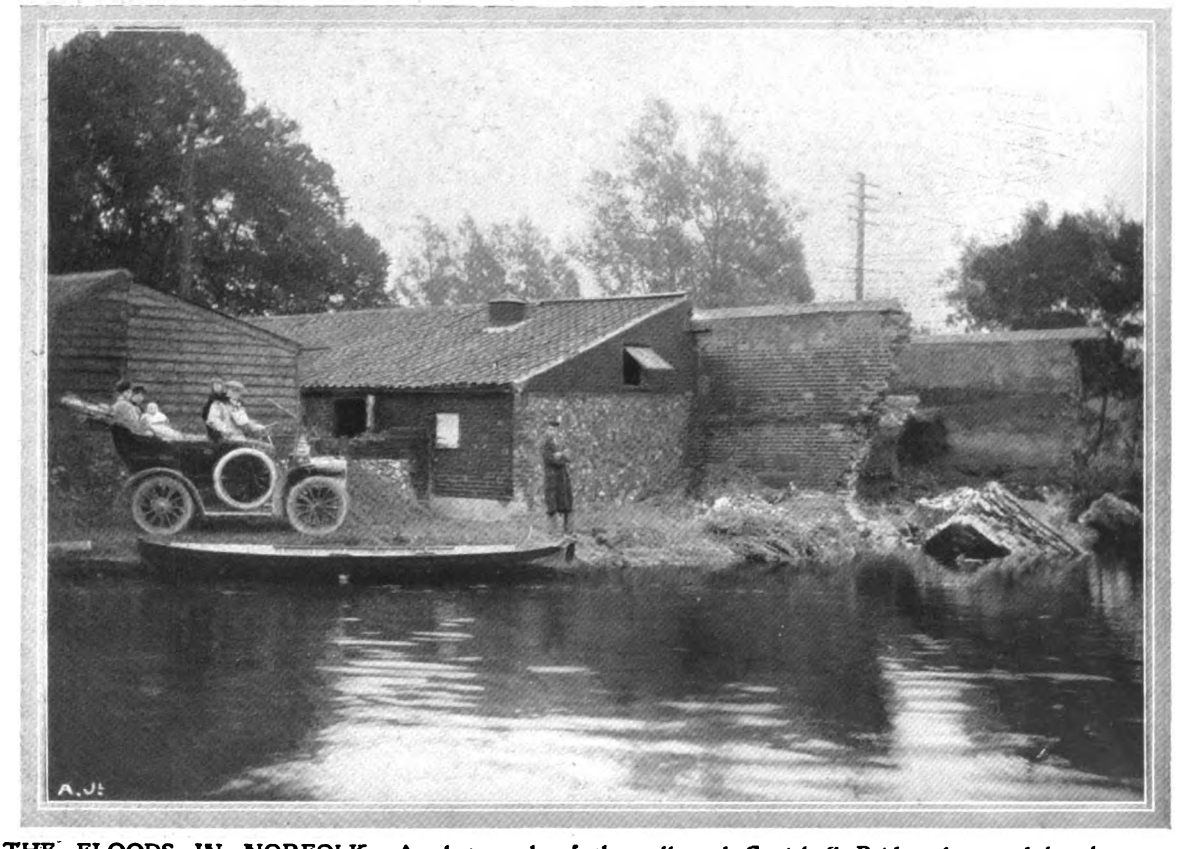
Following the practice of the best makers an ample kit of tools and spares is included with every chassis delivered.

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Sign-Posts in Scotland.

ALTHOUGH over 1,200 caution and direction signs have been erected by the Scottish A.C., each one has been carefully considered and the site inspected before its erection, and the club has on hand a scheme for the erection of several hundred additional signs.

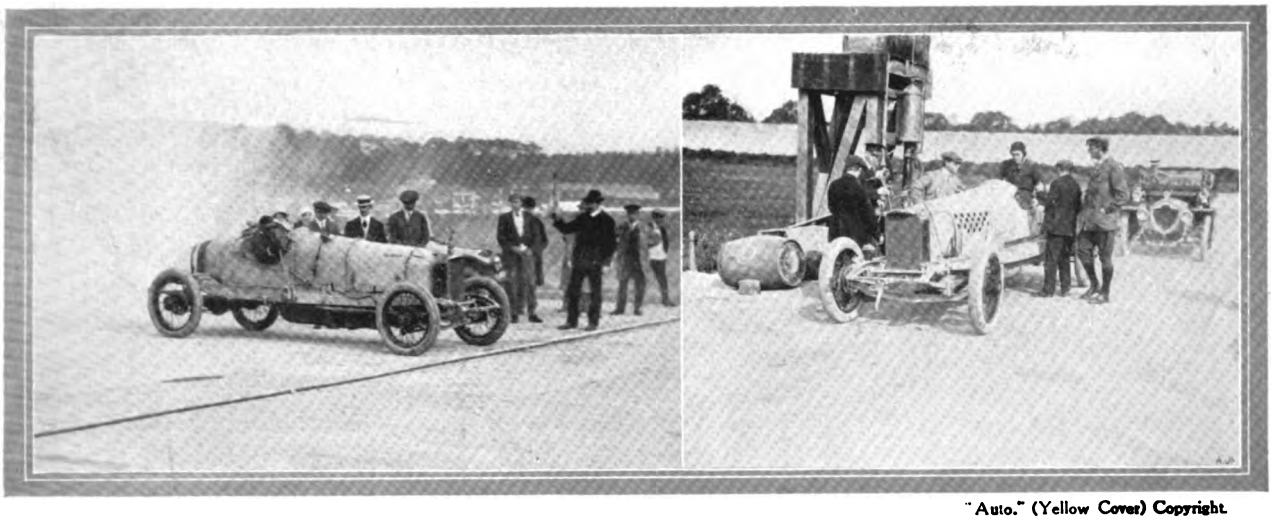
Sir John Macdonald's proposal for the addition of symbols to the existing County Council caution triangles, to indicate the nature of the danger to be expected, has been approved by the County Councils Association, and a sub-committee of the Association has been appointed to confer with representatives of the S.A.C. on the subject.



THE FLOODS IN NORFOLK.—A photograph of the collapsed Cottishall Bridge destroyed by the recent floods. This has been sent by Mr. F. S. Bennett, who is at the wheel of the Cadillac car seen in our photograph, which is one of the old 9-h.p. models used in the Standardisation Test of 1908. With this veteran, which has now seen five years' hard service and is still going as strong as ever, Mr. Bennett has been touring with his family for a holiday round Norfolk.

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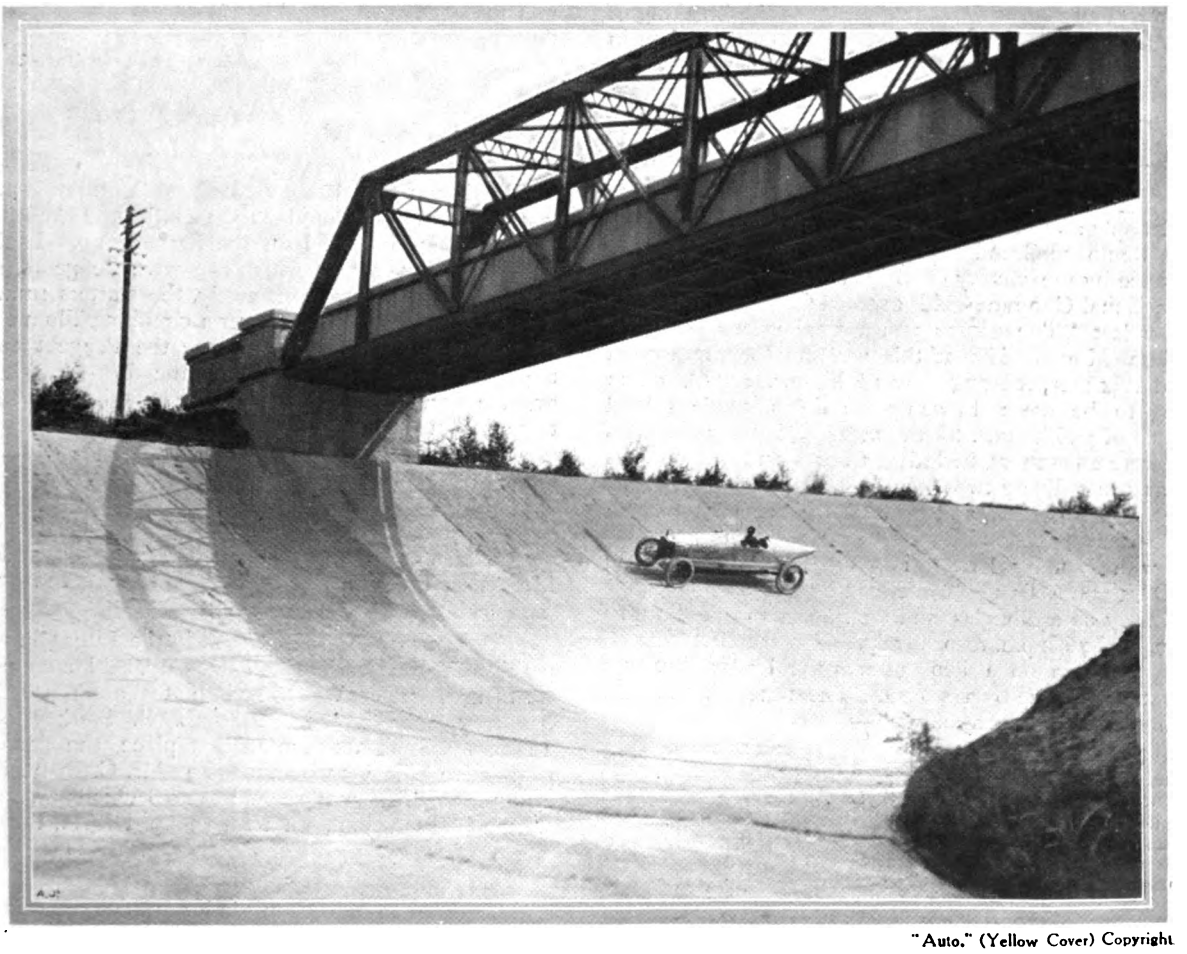
RECORD BREAKING AT BROOKLANDS.



"Auto." (Yellow Cover) Copyright.

RECORD BREAKING AT BROOKLANDS BY THE SUNBEAM.—D. Resta just off, and, on the right, filling up with Shell Spirit.

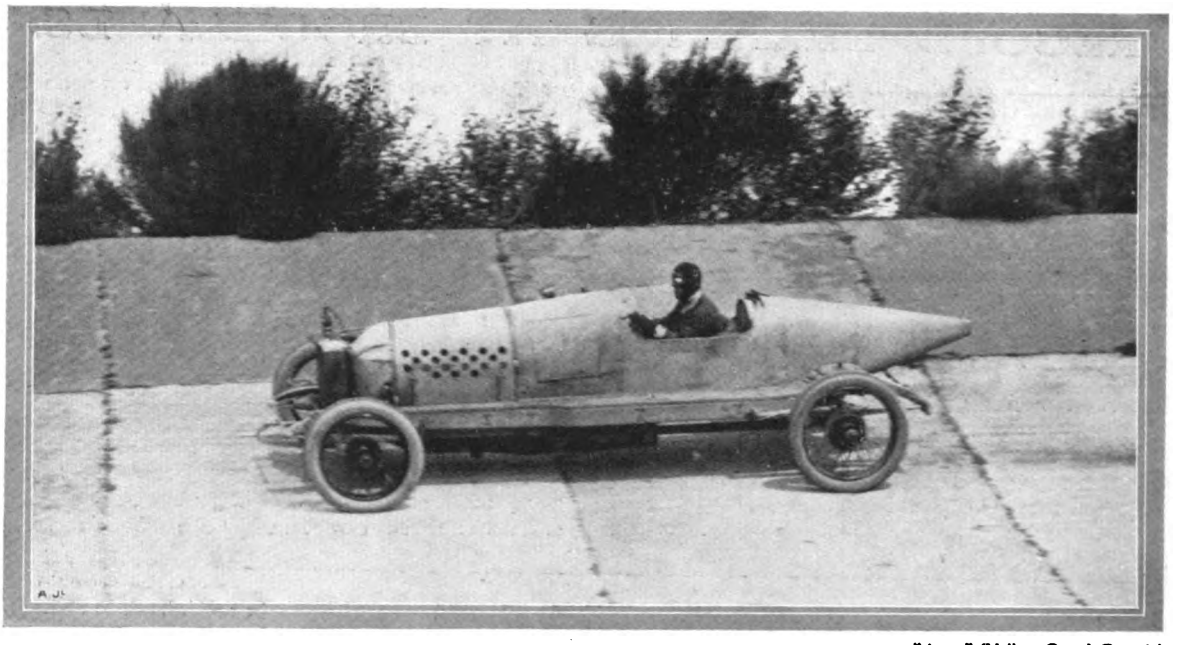
THOSE who saw the first stages of Mr. D. Resta's attempt to beat the world's records for one, two and three hours at Brooklands on Monday felt certain that he would have no difficulty in attaining his object. The 30-h.p. Sunbeam car was running magnificently, as is shown by the fact that it averaged 93·73 miles an hour and made a new record for 50 miles in 32 mins. 16·40 secs., some 34 secs. better than the previous record, made



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KNOCKING TIME OFF THE 50-MILE RECORD.—D. Resta on the 30-h.p. Sunbeam passing under the members' bridge at Brooklands on Monday last during his attempt on records.

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"Auto." (Yellow Cover) Copyright.

D. Resta on the 30-h.p. Sunbeam at Brooklands on Monday breaking records at 93 m.p.h.

by Mr. C. M. Smith on the 60-h.p. Thames three years ago. The fastest lap was covered at a speed of 96·90 m.p.h. After between 53 and 54 miles had been covered, however, a stop was necessary owing to the breaking of the union on the petrol tank. Some time was taken in repairs, and when the car was ready to re-start an elusive "short" interfered with the electrical timing arrangements. It was not until four o'clock that a fresh start was possible, and then, after covering a few laps, it was decided to postpone the attempt.

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RACES, RECORDS AND TRIALS.

British Success in French Motor Cycle Race.

IN splendid fashion, the success of the British cars at the Boulogne Grand Prix Race has been followed up in France by the victory of British motor cycles in the International Cup race held over the Sarthe circuit on Sunday last. The course was a smaller one than that used on Monday last at this meeting for the second Grand Prix race, it being only 18 kiloms. round, which having to be covered twenty-two times, made a total distance of 396 kiloms. for the race. Of the 35 entries there were 28 starters, including tri-cars and side-cars as well as the ordinary two-wheelers. There was a strong British representation, and of the first dozen that finished no less than eight were British machines, in one or two cases with French riders. First across the finishing line was Devay on a Triumph, followed by South on a Rudge and Bailey on a Douglas, and their speeds worked out to 78, 77, and 76 k.p.h. respectively. For the first part of the race Perrin on a Peugeot was the leader, but was put out of the race by a smash. The times of the first dozen to finish were as follows :—

	h.	m.	s.		h.	m.	s.
1. Devay (Triumph) ...	5	6	54	7. Taylor (Rudge) ...	5	49	50
2. South (Rudge) ...	5	12	35	8. Des Vaux (Peugeot)	5	58	2
3. Bailey (Douglas) ...	5	19	24	9. Gabriel (Triumph)	5	58	53
4. Pean (Peugeot) ...	5	24	43	10. Scott (Rudge) ...	6	3	20
5. Cuzeau (Terrot) ...	5	34	9	11. Steibel (Indian) ...	6	3	51
6. Hickham (Douglas)	5	49	40	12. Bashall (Douglas)...	6	14	8

The Second Grand Prix Race.

A DOUBLE Peugeot victory was scored in the second big road race dignified by the name of the Grand Prix and held over the Sarthe Circuit on Monday last. On this occasion the Grand Prix was for the Voiturettes, while the big cars raced for the Sarthe Cup. Including four big racing cars, of which two were Peugeots, driven by Boillot and Goux respectively, the starters numbered eighteen, and they had to cover a circuit 54 kiloms. round thirteen times. Early in the race the Peugeot cars set the pace, Boillot being fastest in the fifth lap, when his average speed was 129 k.p.h. He was, however, forced to retire, but his team-mate, Goux, won the Sarthe Cup at an average speed of 119 k.p.h , taking 5h. 31 m. 54⅘s. for the course of 648 kiloms. Zuccarelli, on a Peugeot, won the Grand Prix de France, taking 6h. 12m. 25⅕s., his average speed working out to 104 k.p.h. Champoiseau, on a Schneider, was second in 6h. 30m. 36⅕s., and Leon Molon, on a Vinot, took third place in 6h. 31m. 31s.

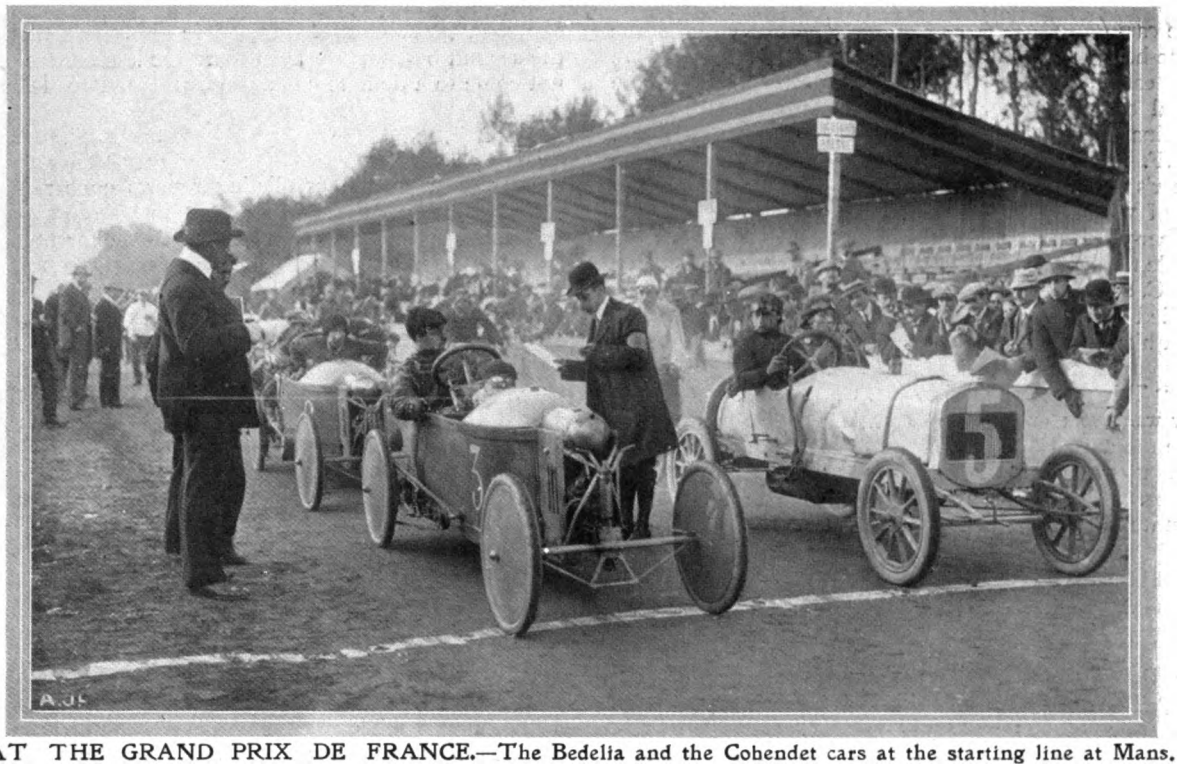
The Du Pre Challenge Cup.

THE award of the R.A.C. in the Inter-Club Competition for the Du Pre Challenge Cup, held in connection with the Leicester A.C. hill-climb at Woodhouse Eaves, has now been issued. Miss L. B. Starkey on her 12–16-h.p. Sunbeam secured first place, the percentage of relative efficiency being 226·9, Mr. C. Bianchi on a 15-h.p. Crossley was second, 209·8 efficiency, and R. Sutton-Clifford, jun., on a 12–15-h.p. D.F.P., third with 137·9 efficiency.

Records at Brooklands.

IN order to prevent misunderstanding, it should be noted that the splendid performance of the 15·9-h.p. Star car at Brooklands last week were records in Class E

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AT THE GRAND PRIX DE FRANCE.—The Bedelia and the Cobendet cars at the starting line at Mans.

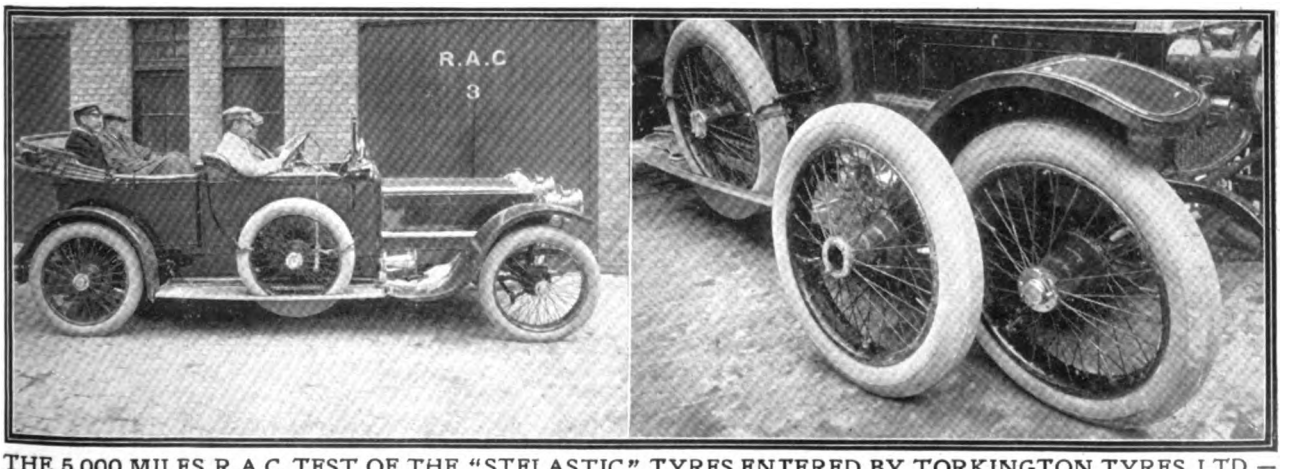
that is cars with an engine not exceeding 3,851 cc. capacity. "Record" without a qualification might imply the best on record, and it will be remembered that the speeds for one to three hours are held by a Thames car, and thence up to twelve hours by the Sunbeam, and onward up to twenty-four hours by the Napier.

A 5,000 Miles Tyre Test.

At one o'clock on Monday, a set of the new pattern "Stelastic" tyres, entered by Torkington Tyres, Ltd., of 76, York Street, Westminster, and fitted to a 6-cylinder Daimler car, set off for an R.A.C. observed 5,000-miles trial. The test is especially interesting on account of its length, and on account of the novel constitution of the tread of the tyre, into one half of which are introduced small spiral steel wires. Later we shall be giving more minute details of this original device. The tyres under test are of the standard size for the car to which they are fitted, and are mounted on Rudge-Whitworth detachable wire wheels. The total weight of the car and passengers is about four thousand pounds, which weight is to be made up by iron bars should any passenger be absent during the week. A fresh road will be travelled each day, the routes being as follows:—Monday, Oxford Road; Tuesday, Exeter Road (Stonehenge and back); Wednesday, Great North Road; Thursday, Stratford-on-Avon and back; Friday, Bath Road; Saturday, Coventry Road. The average mileage will be about 166 per day, and the car will finish up at the R.A.C. garage each evening, where it will be locked up.

Essex Motor Club Award in the 24 Hours' Run.

As we predicted in our report last week, a very large number of gold medals have been awarded in the 24-hour run to York and back. No less than 13 out of the 19 motor cyclists, 8 side-car combinations, 1 of the two



THE 5,000 MILES R.A.C. TEST OF THE "STELASTIC" TYRES ENTERED BY TORKINGTON TYRES, LTD.—Just before the start on the Daimler Car, upon which the tyres are fitted, on September 9th. On the right a closer view of the tyres is seen.

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cycle cars (the G.W.K. of Mr. D. S. Parsons), and the 16–20-h.p. Benz Söhne of Mr. Ormonde Darby have been each awarded gold medals. Silver medals were gained by one motor cyclist, four drivers of side-car combinations, and two motor cars, Mr. Darby's 10–14-h.p. M.A.F. and Mr. G. M. Eden's 3·8-h.p. Zebra. The former's total time error was only 20 mins., more than half of which were lost through the dropping off of a number-plate during the night. Bronze medals were awarded to one motor cyclist, one side-car driver, the little C. and H. cycle car (which had been so pluckily handled by its designer, Mr. C. H. Carfield, and which lost a higher award merely through hard luck with tyres), and to the second little Zebra car of Mr. F. B. Goodchild. The "Triumph Cup" fell to Mr. C. T. Gray, whose total error was but 1 min. and 20 secs., a truly remarkable feat, while the record best motor cycle amateur performance was that of Mr. W. Cooper with a total time error of 2 mins. 45 secs. Mr. E. Frasetti, whose total error amounted to but 6 mins. 55 secs., won the prize for the best amateur side-car driver; while the competition for the second best was so keen that the committee could not come to a definite conclusion, and had to defer this award.

The Czar's Cup.

IN view of the conflicting reports concerning the performance of the Austin car in the competition organised by the Imperial A.C. of Russia for the Czar's Cup, we have much pleasure in giving the following official data, supplied to the Austin Motor Co. by Gen. Swetchine, Aide-de-Camp to H.M. the Czar and Vice-President of the I.A.C. At St. Petersburg the Austin made fastest time of the cars competing for the Czar's Cup, and also fastest speed on formula. At Riga it scored the same results, while at Warsaw it again made the fastest time. In the speed trials at Kieff it made fastest time and fastest speed on formula, the time up hill being 34 secs., while the time of the second car was 40⅕ secs.

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MOTOR BOATING.

The B.I.C. Returns to England.

AT last the British attacks on the British International Trophy, originally known as the Harmsworth Cup, which has reposed in the United States since it was won by "Dixie," in 1907, have been successful, and to Mr. Mackay Edgar and his speedy "Maple Leaf IV," piloted by Mr. T. O. M. Sopwith, belongs the honour of bringing the coveted trophy back across the Atlantic, much to the gratification of all British motor boat enthusiasts. In our last issue we were just able to record the win of "Maple Leaf IV" in the second of the series of races, in which the Marquis of Anglesey's "Mona" finished second, while on Wednesday last week "Maple Leaf" won the third race at an average speed of 37·8 knots. The only other boat to finish was "Baby Reliance II," which won the first race on the previous Saturday. In the second race the sea was very choppy, and the British boats were able to show up to good advantage, but the times were slow, "Maple Leaf" taking 1 hour 6 mins. for the four rounds of the course, while in the final race she only took 47 mins. 46 secs. For some distance the American boat, "Ankle Deep," held the lead, but a broken propeller put her out of the race when she was rapidly being overhauled by "Maple Leaf." It will be remembered that "Maple Leaf" is a hydroplane of the Saunders-Fauber type built by Saunders at Cowes, while the engines were supplied by the Austin Motor Co., Longbridge Works, Northfield, Birmingham.

America Challenges Again.

THE victory of "Maple Leaf IV" means that next year the races will be held in British waters by the Royal Motor Yacht Club, and a formal challenge has already been received from America. This fact should stir up British owners and designers, and it is hoped that there will be no lack of defenders next year, so that the Trophy may be kept at home.

Last R.M.Y.C. Regatta.

ALTHOUGH fine weather prevailed for the last two-day regatta arranged by the R.M.Y.C. for this season, and held in Southampton Water on Friday and Saturday last, a strong north-westerly breeze knocked up a somewhat nasty sea, which was all against the hydroplanes and prevented one or two from getting over from Cowes. In the Restricted Class race the only competitors were Mr. J. Bird's "Rip III" and Col. Cowper Essex's "Pixie II," Gyranda being an absentee owing to the illness of Mr. Tom Thornycroft. "Pixie II" was not running up to her usual form, and allowed "Rip III" to gain an easy victory. There were also only a couple of starters in the Cabin Cruisers' race, and Mr. E. F. Kenneth Dry's "Neva," feeling the strong wind more than Mr. H. W. Hutchinson's "Dranoel," could not keep up with her, and lost by 2 mins. 11 secs. over the course of 5·86 nautical miles. "Rip III" and "Pixie II" were also the only starters in the handicap for boats over 15 knots, and as the latter had to give up through a lump of waste collecting round her propeller, the former stopped at the end of the first round. Of the eight entrants for the Allcomers' Sprint Sweepstakes four crossed the line, and the result was another win for "Dranoel," with "Rip III" losing by 33 secs. and Mr. Harvey Du Cros, Junior's, Austin-engined "Nitsu" a good third.

A similar programme was carried out on Saturday, when there was keener competition. "Rip III" again won the Restricted Class race, but in the handicap for boats not exceeding 15 knots Commander Cumming's "Commander" gained a victory by the narrow margin of five seconds from the limit boat, "Neva," "Dranoel" taking third place. There was a quartette of starters in the handicap for boats over 15 knots, in which "Rip III" had another win, her speed working out to 35 knots. The second place was taken by Mrs. Thornton's "Columbine," with "Pixie II" third, the place which would have been occupied by Mr. Douglas Hall's "White Spray" had she not lost thirty-two seconds at the start. Perhaps the best race was the last one—a sprint for all-comers, over a course of 2·1 nautical miles—in which there was only one absentee out of the eight entrants. That non-starter, "Neva," had the misfortune to get a mooring rope round her propeller just before the start. "Dranoel" came in first, leading "White Spray" by ten seconds, with "Commander" nine seconds further back and "Nitsu" taking fourth position.

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Two Motor Boat Race Results.

AWARDS have now been issued by the British Motor Boat Club concerning two races held at Cowes. In the race for the Motoring Illustrated Challenge Cup, Mr. H. Hollingsworth's "Cordon Rouge" was declared the winner, and by reason of having won it twice in succession secures it outright. A protest in the race for boats over 10 knots, on August 9th, resulted in the S.M.M.T. Cup being awarded to Capt. Pierce's "Falcon," with "Baby VI" taking second prize and "Columbine" the third prize.

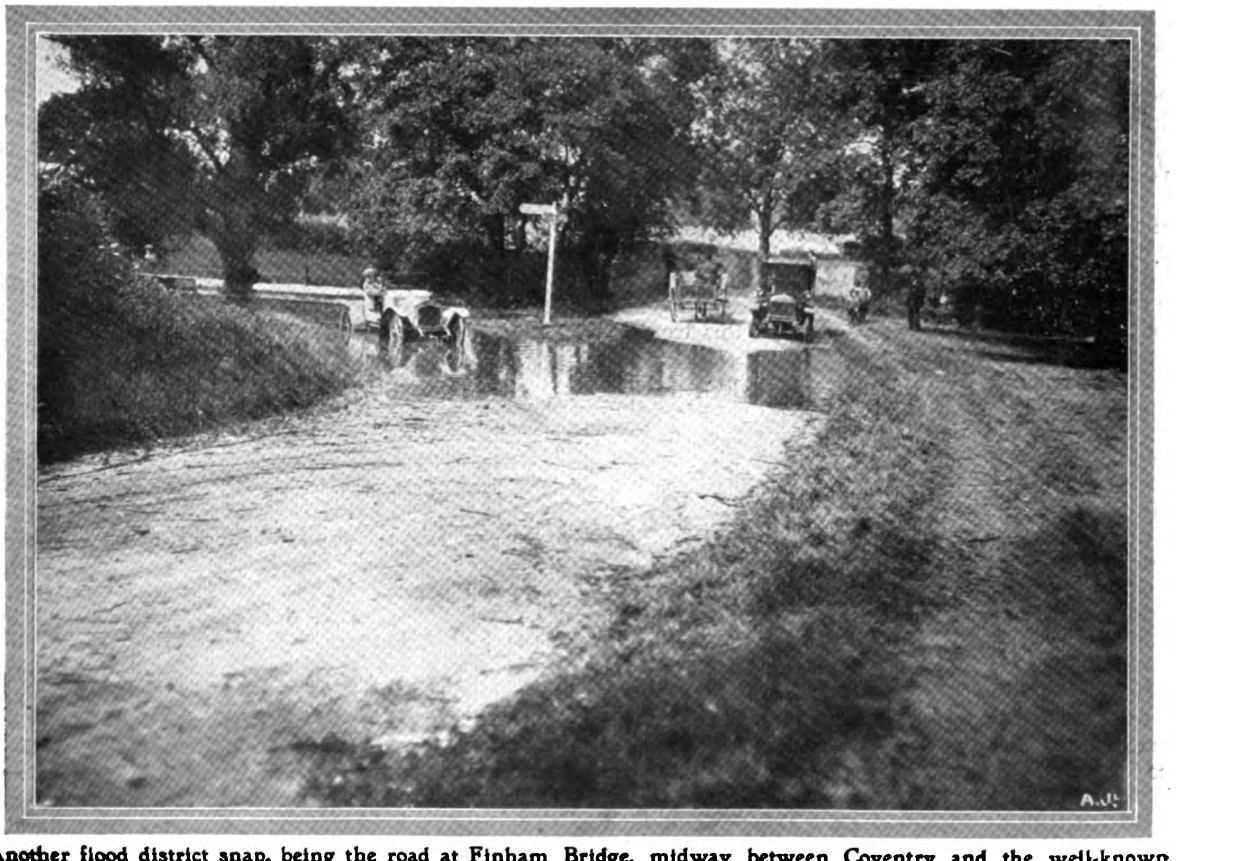
The B.M.B.C. Burnham Regatta.

IT is anticipated that the annual regatta of the British Motor Boat Club at Burnham-on-Crouch, on September 26th, 27th and 28th, will draw a record entry of close on 200. Six events have been arranged for each of the first two days, while nine races are set down for decision on the last day. This meeting practically winds up the British motor boat season.

Motor Boat Racing at Brighton.

THE Sussex M.Y.C. were able to conclude their postponed regatta on Monday, when the programme opened with a scouting competition for the *Standard* Challenge Cup. In an area bounded by imaginary lines three miles east of the Palace Pier, three miles west of the Palace Pier, and three miles seaward of it, a number of marked buoys, representing floating "mines," were set adrift. Five boats set out to find them some hours later, and Mr. H. J. Preston's "My Lady Molly" was awarded first place with seven "mines," Mr. A. Gorham's "Shannon Lass" with half-a-dozen, while the other three entrants each scored three. Three boats started in a scratch race for the "Championship of Brighton," and Mr. J. H. Bell's "Fascination" had a runaway win. This was followed by a handicap for cabin cruisers, in which Mr. R. Paule's "Sri Sarawak" secured the first prize, with "Hirondelle" second. Mr. I. M. Bellairs' "Hatasoo" was first home, but was disqualified for passing a mark on the wrong hand when finishing.

The annual contest for the *Daily Telegraph* Cup for boats not exceeding 10 knots, provided a very fine race between "Shannon Lass" and Mr. T. Reeves' "Albatross," the former winning by only 5 secs. from scratch, after allowing "Albatross" 11 mins. 26 secs. over two rounds of a course of three miles. The final race was an Allcomers' Handicap, which was won by "Albatross," "Firefly" being only beaten by 3 secs., while "My Lady Molly" took the third prize.



The Roads in Kent.

SOME interesting figures regarding the cost of main roads in Kent are to be found in the Annual Report of the County Surveyor (Mr. H. P. Maybury). Among other things it states that the actual cost of the rural main roads in the county last year was £112,361 7*s.* 8*d.*, an increase of £18,117 12*s.* 5*d.* over the previous year. In the meantime the number of motors registered in the county had grown to 7,591 private cars and 385 heavy vehicles; the increases in twelve months being 1,394 and 85 respectively. In treating nearly six million superficial yards of road no less than 1,146,634 gallons of tar were used, the tar-painting bill coming to £28,655 17*s.*, while an additional £5,103 2*s.* 7*d.* was paid to urban authorities for such work.

Another flood district snap, being the road at Finham Bridge, midway between Coventry and the well-known Stoneleigh Hill. The car, which is just fording the flooded road, is a 12-h.p. Rover.

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MOTOR CYCLE MUSINGS.

By VICTOR HART.

Waterproof Magnetos.

MOTOR cyclists ought to regularly offer thanks to magneto manufacturers for the wonderful ingenuity displayed in the tiny ignition equipment whereby the modern engine is fired for month after month without ever giving a moment's trouble. Those riders who have taken up the sport since 1909 can hardly realise the worries attending the propulsion of earlier types of machines fitted with accumulator-coil ignition, and it is only the old hands at the game who pour down blessings upon the heads of Simms, Bosch, Eisemann, and other magneto pioneers for their relief from the one exasperating defect which nearly forced motor cycling into obscurity.

Of all the fitments upon an up-to-date machine, the magneto generally gives the least trouble, for beyond regular lubrication of the bearings and adjustment of the contact breaker at very long intervals, the magneto quietly effects its work and will last as long as the frame. Yet there is still one point needing improvement, and until this is remedied no magneto maker can properly claim that perfection has been reached. I refer to the liability of water entering and short-circuiting to such an extent that hours of valuable time are wasted in completely dismantling the ignition output, thoroughly drying every part and reassembling. Under ordinary circumstances this defect does not make itself apparent, but the unfortunate individual who uses his machine when heavy rain falls without cessation for hours on end, learns the lesson that magnetos are still far from the claim made for them that they are absolutely waterproof.

At the Olympia Show of 1911 sundry patterns were exhibited that appeared to solve the difficulty, the horseshoe magnets having aluminium plates covering the gaps between the magneto and the armature, whilst another aluminium casing so enclosed the bearings and pole-shoes that only a small circular opening was left for the entry of the high-tension wire. That rain can reach the interior is a possibility which magneto manufacturers may dispute, but about which there is no question of doubt amongst motor cyclists who employ their machines at all times, and the happenings to several competitors in the recent A.C.U. Six Days' Trial are sufficient proof of my contention. Investigating the cause of this trouble, I am satisfied that water can get down between the edges of the aluminium cover plates and the horseshoe magnets, these plates not sufficiently lapping across the ends of the magnets. The obvious remedy is to insert a narrow leather fillet where the edges of the plates abut against the magnets, not only at the upper curve and vertical lines, but also horizontally where the plates come against the cover which surrounds each side of the armature and the bearings.

Where most of the water enters is at the ebonite ring through which the high-tension wire is taken, and as this wire on nearly every machine—except the Bat and the Scott—comes down hill from the sparking-plug to magneto, the high-tension wire creates a natural path for water to trickle through that opening, drop inside on to the "table" where the snap-on thimble is attached, and thence the water finds its way to the pole-pieces, into the bearings, and on to the high-tension slip-ring. (With magnetos for twin engines, where the high-tension wires are clipped on to the exterior thimbles that carry the carbon brushes, trouble from water at these points can be prevented by the attachment of rubber sleeves made for the purpose, such sleeves also being a splendid preventative of "shorts" when slipped over the attachments of the high-tension wires at the sparking-plug terminals.)

To remedy this last defect upon a single-cylinder machine is not so obvious as is the case with the cover-plate edges. One cannot expect all motor cycle manufacturers to so revise their designs that the magneto is placed right away above the engine, nor will the casting of a lip above the orifice for the high tension wire, in the cover plate, preclude water running down the wire insulation. The few men who have discovered why short circuiting occurs have solved the problem for themselves by plugging tow between the wire and the ebonite ring, and then dabbing plenty of vaseline on the makeshift contrivance. It is not pretty, and unless carefully performed particles of the tow get inside and may eventually become jammed between the very close air-clearance between armature and pole-pieces. Whatever the nature of any permanent device at this point, it must not interfere with the quick detachment of spark-plug wire from magneto. It occurs to me that a small rubber ring—much like those which careful people push down an umbrella stick to keep the steel ribs close together when the umbrella is furled—would be the very thing for the purpose, as there would only be need for a slight counter sinking in the cover plate to support the ring, it could be held on the exterior by three screws and a small metal ring, whilst the rubber would serve equally well to keep out water, to prevent chafing of the wire insulation against the metal of the cover plate, and the wire could be instantly withdrawn or pushed back into position.

The Trade and Competitions.

A very good friend, whose weekly articles in a trade contemporary are deservedly appreciated by readers, has once more taken up the cudgels on behalf of that section of the industry which would much like all races, competitions, and tests to be tabooed by the Manufacturers Union. I fear our friend, competent as he is to write on most subjects, is venturing to discuss a matter somewhat beyond the range of his personal experiences, otherwise I feel sure quite a different opinion would be expressed. Did he refer only to speed hill-climbs, self and most other people—other than competitors out for prizes—would willingly help to suppress this useless form of competition, which manufacturers themselves mainly keep alive.

It is otherwise with genuine reliability trials, such as the old "Quarterlies," the A.C.U. Six Days and the T.T. races. Out of those three series of contests has the modern machine been evolved, and the necessity for their continuance is easily demonstrated by reference to the list of mishaps and breakdowns recorded in the Press after each event. Companies that have built up their present success out of those events are somewhat ungrateful to the organisers in now agitating for a boycott. Big reliabilty trials, by discovering weaknesses of design or material, save motor cyclists thousands of sovereigns a year in not having to purchase experience of unsatisfactory parts out of their own pockets. It will be a sorry day for the industry when design settles down to a standardised groove and machines are all as much alike as are pedi-cycles.

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Notes from New York



BERT DINGLEY, one of the best-known racing drivers in the United States, having taken part in several Vanderbilt and other big races, has decided to retire. He intends to establish an automobile business in Los Angeles.

• • •

An illustration of the way in which the new system of branch assembling factories saves freight charges was witnessed the other day when the makings of 630 cars were shipped from the Ford factory, in Detroit, to the new assembling plant at Kansas City, Mo. If the cars had been complete 210 railway trucks would have been necessary for their transport, but as it was only 24 trucks were required, two being loaded with dashes, one with radiators, six with motors, nine with frames, one with wheels, three with fenders, one with tanks, and one with miscellaneous parts.

• • •

The Flanders electric car employed for going over the course proposed for the National A.A. Reliability Tour completed its work on August 28th, having taken 29 days to cover the 1,100 miles between Detroit and New Orleans. This time, of course, includes a good deal of delay due to conferences in connection with the making of all arrangements, &c., at the various points on the tour.

• • •

The wire wheel is beginning to make its way in America, and it is announced that the George W. Houk Co., which has the American rights, has arranged with the Standard Roller Bearing Co., of Philadelphia, to manufacture Rudge-Whitworth wheels for the American trade. Manufacturing on a large scale will be commenced at the end of this month.

• • •

The Automobile Board of Trade has now arranged for licences under the Dyer Patents, governing gate change gear-boxes, which promised to become even more important than the Selden Patent. Licences will be issued to the members of the Automobile Board of Trade, and it is thought in some quarters that the action will expedite the proposed merging of this concern, which has forty-six members, with the National Association of Automobile Manufacturers which represents ninety-two car makers. The most important patent included in the arrangement has fifty-seven claims, and the inventors' attorney declares that it covers every phase of the present type of selective gear-box in general use throughout the industry.

• • •

New Yorkers are rejoicing that their Governor is a motorist, as one or two of his recent experiences have led to slight improvements in the lot of car owners. The Governor's car was recently caught in a police trap, and thereafter the police were instructed not to take action if there was no traffic on the road and the infraction of the speed limit was not very great. On another occasion the Governor's car was proceeding along a road when it suddenly came to a block where road repairs were being carried out. The car had to be turned round and then driven back some distance before another road could be taken. Instructions have now been issued by the Highway Commissioner that when road repairs are in progress men will be stationed at suitable points to give information to drivers, &c.

• • •

The local motor club at Indianapolis has been very busy lately posting direction signs, and the manufacturers have helped in a good work by lending cars to take the officials from point to point. The ordinary sign indicating the road to Indianapolis is a white stripe on every tenth telephone or telegraph pole, and to indicate dangerous places two white stripes, each six inches wide.

• • •

In a sworn statement covering his expenses in connection with his attempt to secure election as a U.S. Senator, Mr. J. F. Wolters, of Texas, states that he covered 16,300 miles in Texas in a motor car owned by himself at a cost of a little over $856, this including gasolene, garage charges, repairs, &c. The trip occupied about four months, and for the whole distance the cost worked out at a trifle more than five cents per mile.

• • •

At the close of the fiscal year of the State of Wisconsin on June 27th it was reported that $124,203 had been received in motor car fees, the licences issued being 21,194 for cars, 3,178 for motor cycles and 959 for dealers. The cost of administration of the cars was returned at $18,751, leaving $105,552, of which 25 per cent. was credited to the State Highway Fund and the remainder distributed among the various counties of the State.

• • •

In Ohio State $260,000 have been received in license fees during the first seven months of this year, whereas the total receipts for the whole of 1911 was $190,000. Up to August 1st, 58,442 sets of number-plates had been issued as against 45,000 sets for the whole of last year.

• • •

The rapidly growing increase in the demand for Jones Speedometers, &c., has necessitated the extension of manufacturing facilities. A portion of the Bush Terminal building Brooklyn, N.Y., has been obtained, and thither the general offices and shipping department will shortly be removed. The factory at New Rochelle will be retained, and the new arrangements will more than treble the size of the factory.

• • •

Mr. H. W. Alden, chief engineer of the Timken Roller Bearing Axle Co. of Detroit, first Vice-President of the Society of Automobile Engineers, has succeeded the late Mr. H. F. Donaldson in the Presidental chair.

• • •

A conference was held at Detroit on August 7th between representatives of the railway companies and of the motor car manufacturers, to consider plans for getting all the railway trucks necessary for delivering the 1913 shipments of motor cars. Seventeen motor cars were represented and it was stated that to transport Detroit's contribution of 330,000 cars to the world's output of cars for the 1913 season some 102,000 railway trucks would be required.

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.

Trustees.
Messrs. S. F. EDGE, P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. H. Pye, trustee; committee, Messrs. Moores, Hardy, Holland No. 2, Oliver and Shaw.

The minutes of the previous meeting were read and confirmed.

N.S.C. Garages.

Application for honorary membership was made by Mr. E. Ford, 98, Chestergate, Macclesfield. The chairman said he knew the garage to be the first established in the town, and he would suggest that Mr. Ford be elected. The committee granted the application, and instructed the secretary to forward the sign. Members who put up at N.S.C. garages are requested to make themselves known as N.S.C. members. A garage proprietor has complained that, wishing to keep a list of members using the garage, he was surprised on the arrival at the garage of a committeeman to find there were already two members in his garage, and he had no idea that they were N.S.C. members. It is to the interest of the members and the Society that garage proprietors should know they are getting business through the Society, and also give them a chance to extend the hand of fellowship.

The secretary reported that the lad who had stolen the money of the Society by forcing the letter-box had, after being 14 days on remand, been sentenced to 18 months in a reformatory school under the Probation of Offenders Act. At the end of that time he will be brought before the magistrate again, and his conduct during the time of probation will be reported. The parents and friends of the offender had repaid a substantial part of the moneys taken.

This case has been a very sad one, the lad having brought great grief upon a very respectable family, and he, the secretary, felt the greatest sympathy for the parents, and he trusted that it would never fall to his lot to have a similar experience in the capacity of detective and prosecutor.

The chairman remarked that it was always a regrettable duty to prosecute. In this case the names of the staff had been forged, and the members' subscriptions stolen, therefore the committee had a duty to perform to the members, the staff, the other employees at the garage, and to the public. There had been no vindictive feelings in prosecuting, and if the detention of the lad should lead him to become an honest citizen, then the object of the prosecution would have been achieved.

Clubroom Notes.

Members who can assist in the winter entertainments, or have friends with musical talents willing to assist, are requested to communicate with the secretary.

The French classes will start in November. Any member wishing to "parlez-vous" should send in his name. The terms for the course of lessons will be announced shortly.

Members thirsting for revenge are informed that Percy is again in evidence, and looking out for fresh conquests.

Accepted for Membership.

Harold G. Sillence, London, S.W. | Albert E. Morris, Brigend, Glamorganshire.
Walter Barlow, Hampstead, N.W.

Applications for Membership.

George Renshaw, Hampstead, N.W. | Richard Sales, Co. Galway, Ireland.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed
Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.



Transport of Street and House Refuse.

A SIDE-LIGHT on one of the benefits accruing to the community from the general introduction of motor vehicles is afforded by some figures recently published concerning the City of Westminster, which show that the average daily amount of street refuse to be collected has gradually decreased from 197 tons in 1905–6 to 95 tons in 1911–12. On the other hand, house refuse has gone up during the same period from an average of 185 tons per day to 306 tons per day. It should be noted, however, that since 1908 hotel refuse has been included in house refuse, while Mayfair and Pimlico have been added to the area dealt with, so that partly accounts for the great increase. The use of motor vans for the removal of refuse has resulted in the cost of removal being reduced about sixpence per ton.

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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

84.

AFTER THE SUMMER TOUR.—Now that most of us are returning from more or less extended summer touring, is the time when we should let the car have all that attention which we were unable to give it while we have been away from home. Of course we have carefully seen to everything before we set out on the tour, and the car has amply repaid us for the little extra trouble we took over preparing it for the strenuous touring season. But, like to myself, I feel sure it has happened to most of those who take their cars for a tour of a few thousand miles, that while they are away from home it is quite impossible to attend to out-of-the-way details of the car so regularly as during the time when we are returning home every evening. The car may have developed a squeak which we either could not or did not trouble to locate, and here or there a piece of copper wire may be found on the car, bearing witness of a hurried make-shift repair on the road. All these things should be attended to after our return home as soon as we find the time to do it, and where the car is wanted every day, time for such an overhaul should be asked for. Every employer who values the regular services of his car and appreciates a servant who takes care of his master's property is sure to grant a few days—two or three—for this kind of work, provided that the necessity of it is put before him in a proper way.

To pass on to the actual work to be done, the very first thing to do is to make a proper job of every repair that has been fixed up temporarily in a more or less make-shift manner. There will be but few of this kind, and from my own experience I take it that very little, if anything, wants seeing to in engine and transmission. The valves may, perhaps, want grinding, especially when our tour has included a good deal of hill-climbing, and the engine frequently got hotter than usual. Lubricant may also need replenishing in the gear-box and differential, and the metal-clutch may want rinsing out and filling up with fresh oil. But it is the chassis itself, and the suspension, which are mostly in need of an overhaul. All the greasecaps, which, while away, we have screwed down only at irregular intervals want refilling; especially those that are in more or less obscure places like on the anchorage of the torque tube, at radius rod hinges and such like places. Now, the filling of screw-down-greasers is by no means such an easy job as most people think. But I have found a method by means of which it can be done quickly, without much trouble, and with but little mess. Instead of the ordinary hard grease, which I have found to be not only stiff but also very susceptible to hold small quantities of water, I am using Vasoleum No. 3, the stiffest kind produced. This has the advantage of not only being a much better lubricant than yellow grease but it melts very easily, and does not change when cold after having been melted. My procedure is to take off all the grease-caps of one part, for instance all those on the near side rear spring, clean them out, put them on the bench upside down and fill them with liquid Vasoleum, that has been warmed over a slow fire. You will find that the Vasoleum cools very quickly, with the result that the grease cups are quite full and screw on very easily. All the greasers of my six-cylinder Lanchester car, for instance, I can take off, clean, refill and replace in just under three hours, with the satisfactory knowledge that all of them are in the best possible condition.

Next take off all the leather covers of the steering joints and see that these joints are refilled with fresh and clean lubricant. Don't be satisfied with smearing the grease on the outside of the joints only, but see that it gets right inside where it is most necessary. Again I have found liquid Vasoleum applied with a squirt a very efficient and convenient mode of lubrication.

Springs should also be seen to, and where they cannot be lubricated by jacking up the frame they should be taken to pieces. I have always found that it pays to take care of the springs, to polish the leaves twice a year and to give them an ample coating of a mixture of Russian tallow and graphite. I have never experienced any bumpiness of the suspension as a result of this treatment, and I am firmly convinced that manufacturers of shock absorbers would do much less business if such care were taken of the carriage-springs. To prove this contention, I should like to point again to Lanchester cars, than which there is no better sprung car in the whole world.

To this end there are a number of very trifling things to attend to after a long touring season, such as accumulator boxes, acetylene generator cases, bonnet hinges and clips, many of which have shaken loose, broken a hinge, or have developed other little faults which should be cured at the very first opportunity if the tidy appearance of the car is valued.

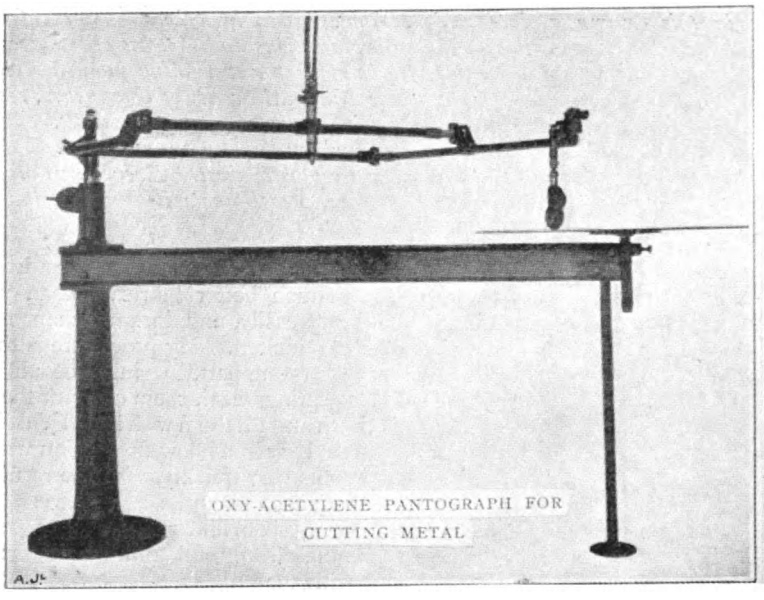
A car which receives this attention in addition to the regular care will be well fitted for a hard winter's work.—*N.S.C.* 16.

NOTE TO CORRESPONDENTS.—During some structural alterations at these offices, a number of letters containing contributions for, and otherwise referring to, our page of "Chauffeurs' Experiences" have accidentally been destroyed. We apologise to our correspondents for this unfortunate occurrence, and should feel obliged if all those who have not received a reply to their communications would write again.—THE EDITOR.

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FOREIGN MISCELLANY.

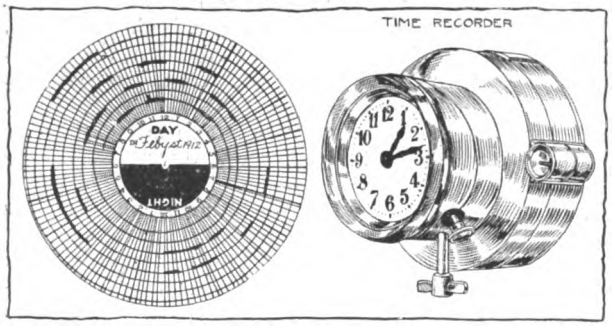
Cutting steel by means of the oxy-acetylene flame. Those who were present at the reading of Mr. Legros' Paper on Pressed Steel before the Institution of Automobile Engineers, will remember the interesting examples shown



OXY-ACETYLENE PANTOGRAPH FOR CUTTING METAL

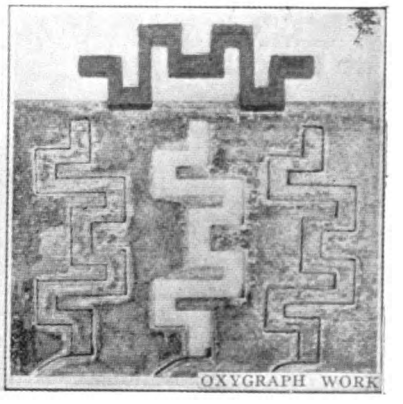
by Mr. A. E. Tucker of 6-inch steel ingots cut by means of the oxy-acetylene flame at the rate of about 6 linear inches per minute; not the least curious feature was the different cutting properties of nearly pure (99·5 per cent.) oxygen and of oxygen less pure (97·0 per cent.), the cut in the latter case being jagged and extremely rough. It would appear that this method is about to be applied in the U.S.A. for cutting out crank-shafts from slabs of steel. For this purpose a simple instrument called an oxygraph is used, which is simply a large pantagraph, with which the workman traces out the blue print (double size) outline of the crank-shaft, while the torch, which is fixed at the proper distance from the fixed point of the pantagraph, burns out the required pattern from the blank. We wonder whether a crank-shaft so manufactured can be as strong as a forged one, as by this method the fibres of the metal are obviously not disposed to the greatest advantage from the point of view of strength.—*Motor World, N. Y.*

An American time-recorder.—To owners of commercial vehicles and to many private motorists such a device

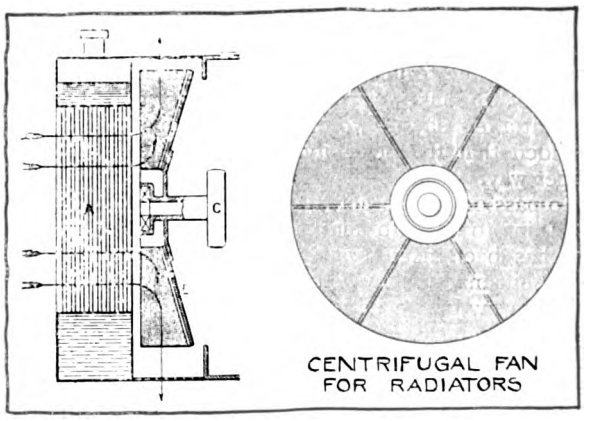


affords an efficient check upon the driver as to the time during which his car or truck was out. The apparatus illustrated is neat, and both clock and record card continue working for a week at a time, so that the device does not entail a great deal of extra attention.—*Motor Age.*

To be convinced of the efficiency of the centrifugal fan for radiator cooling purposes, one need but go to Paris and watch the motor 'buses and heavy trucks which are nearly all fitted with Goudard and Mennesson radiators which work on this principle. During the recent visit of the Institution of Automobile Engineers we watched carefully for any traces of boiling, but in spite of the bad handling of these vehicles (which seems to be the rule rather than the exception) we did not come across a single instance. As the efficiency of this type of fan is so much greater, especially at slow speeds, than that of the propeller type, the illustration reproduced from *Omnia* may be of interest, as it shows that the



OXYGRAPH WORK



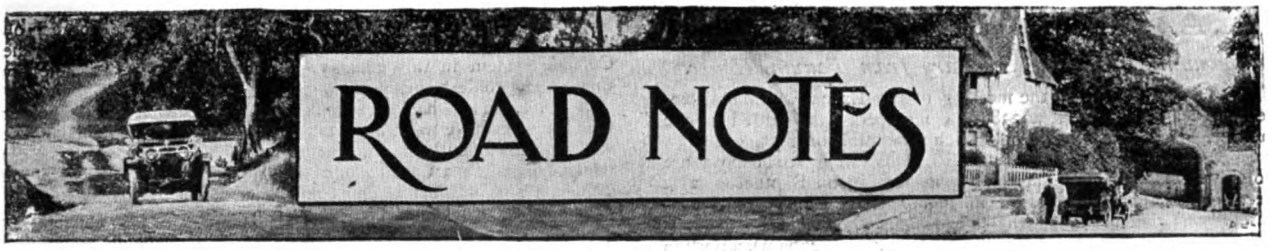
fitting of such a fan to an ordinary car would not be a difficult or expensive matter; while as an additional advantage may be mentioned that the interior of the bonnet would be kept much cleaner than is the case at present.

MAXIMS.

Use the hand-brake when you think of it. Only when you are in the habit of keeping it in mind will it be available in emergency.

It has often been said that any fool can spoil what already exists. A truth that has been learned in the motor industry is that it takes a clever engineer, and one with more knowledge than is gained in a season, to improve a chassis without adding defects.

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ROAD NOTES

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE —Proceed slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Gas main being laid between Codicote and Welwyn, care at night. Little Heath, trench open half-width of roadway, sewer connecting being done, lighted at night.

All cars stopping for more than ten minutes outside any of the hotels or in main streets in Doncaster will be prosecuted.

LINCOLN.—Under repair between Swineshead and Wigtoft (King's Lynn and Cromer main road).

LANCASHIRE.—Stone setts being laid in Walton Village, 1½ miles south of Preston, well lighted at night, extreme caution is essential.

Blackpool–Poulton Road.—Under repair 1½ miles east of Poulton-le-Fylde, remetalling half-width, roller working clear at night.

Members are advised to drive very carefully through Poulton.

YORKSHIRE.—*York–Selby Road.*—Under repair between 6th and 7th milestones from York.

Leeds District.—Timing still in hand at Moortown, Leeds; through the 10-mile limits in Burley-in-Wharfedale and Ilkley, ¼ mile west of Malton from the first milestone. Control is also being worked between Arthington and Pool on the Otley–Boston Spa Road, and in Chapeltown Road, Leeds, from Reginald Terrace to St. Mary's Road; also at Moortown (within the Borough of Leeds).

EAST.

Aylsham–Norwich Road.—Temporary bridges are erected at St. Faith's and Heavingham, and cars can now proceed to Cromer *via* Aylsham, turn to right through Millgate and join main road just beyond Ingworth.

Acle–Yarmouth New Road.—This road is still blocked but it is clear *via* Filby and Caister.

SOUTH.

BATH ROAD.—Proceed with special caution between Hounslow and Colnbrook, and proceed slowly through Maidenhead. Members are advised to drive slowly at night from Sonning Railway Bridge for about ½ mile towards Reading.

BRIGHTON ROAD.—Interrogate the patrol at Kingswood cross-roads. Timing between Reigate and Dorking. Under repair between Kingswood and Reigate. Control at Coulsdon.

KENT.—*Dover Road.*—Timing likely to be in hand at Bexley Heath, Shooter's Hill, Blackheath, and Deptford.

LONDON DISTRICT.—On account of timing operations special care is necessary:—Regent's Park Road; near Church End station, Finchley; Golder's Green; Redcliffe Gardens, the Boltons, Earl's Court Road, S.W.; Victoria Embankment; near Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; through Croydon to Purley; between Wimbledon and Ewell; Hounslow–Staines; Hounslow–Colnbrook; Roehampton Hill; Putney Heath; Harlesden; Maida Vale; Highgate; Holloway; Lewisham, High Street; also between Sudbury tram terminus and Harrow Hill.

MIDDLESEX.—Control working on Staines–Sunbury Common road.

Wood Green.—For the same reason special care is necessary near the junction of Bound's Green Road and Jolly Butchers' Hill.

Controls likely in different places between Southall and Uxbridge.

SOUTHAMPTON ROAD.—Controls are being worked at night through Egham. Gas main being laid at Basingstoke. St. Cross Road, Winchester, is being widened. On the Southampton–Christchurch road controls are likely to be working between Christchurch Barracks and Iford Bridge; also at Pokesdown Hill.

SURREY.—Controls are likely to be in force at the undermentioned points: South Godstone Station, between Ewell and Epsom, Surbiton, between Kingston and Leatherhead.

SUSSEX.—Members are specially requested to observe the 10-mile limit at Uckfield. It is intended to repair the main roads between the following points: Muddles Wood–Aldbourne; Sayers Common–Hickstead; Handcross–Crawley; Ditchling–Hayward's Heath; Lewes–Chailey; Lewes–Polegate; Horsebridge–Horeham road; Eridge–Crowborough; Halland–Cross in Hand; Junction Inn–Cripps Corner; and tar-treatment at Wellington Road, Portslade.

WEST.

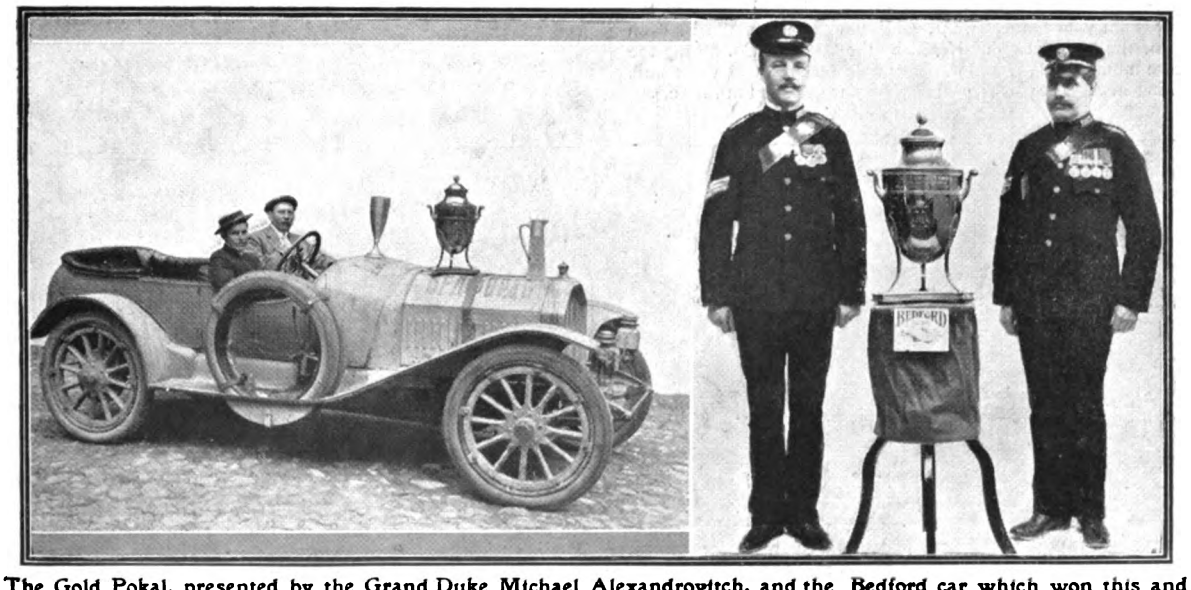
Cardiff District.—Timing likely in hand in Cathedral Road, from Cowbridge Road to tram terminus; Canton, on Cowbridge Road.

MIDLANDS.

Members are requested to slow through Hockliffe, also the Chalk Cutting, Dunstable, Redbourne, Fenny Stratford and Stony Stratford.

Newcastle–Trentham Road.—Timing likely to be in hand from Newcastle to the first milestone, also through Trentham.

Manchester.—Control likely to be working on the Bury–Heywood road from what is known as the summit to the village of Heywood, a distance of one mile.



The Gold Pokal, presented by the Grand Duke Michael Alexandrovitch, and the Bedford car which won this and two other cups in the recent Russian races. The Gold Pokal weighs 153 ounces and is 30 inches high, as may be judged by the guardians of it (on the right), after its arrival in London.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

New Members.—At the meeting of the Executive Committee, held on the 10th inst., 2,238 new members were added to the membership of the Association, which now totals over 55,000.

Special Road Note.—As the Road Walking Association are holding their Junior Championship at Ruislip on September 21st between the hours of 4 and 6 p.m. members are asked to drive as carefully as possible along the following roads while the event is being held :—Long Lane (between Ruislip and Ickenham), a portion of Harefield road to the junction with the Back Ruislip road and the return road by the Ruislip and Harefield road.

Road Closed.—The County Surveyor of Salop has notified the Association that owing to reconstruction of a bridge on the Holyhead road, the main road from Oswestry to Gobowen will be closed from September 16th to the middle of November; the alternative route is through Whittington. The portion of closed road runs from Five Crosses at Pentreclawdd to the rural district road leading from Pentrewern.

Mirrors for Heavy Motor Vehicles and Vans.—The complaints sent in by members regarding obstruction by traction engines, motor waggons and horsed vans are very numerous, and the Association is doing everything possible to induce the owners of such vehicles to instruct their drivers to avoid causing unnecessary annoyance to other road users. The Association is also urging—wherever possible—the fitting of mirrors to enable drivers of vans, &c., to see traffic coming up behind them, and one of the latest successes in this direction is an intimation received from the Great Western Railway that in future their motor omnibuses will be provided with mirrors.

Sleeping Carters.—One of the Association's road patrols recently witnessed an accident caused to a member's motor cycle and side car by a market van, the driver of which was asleep when the accident took place. The motor cycle and side-car was run into a bank and damaged. The van driver was prosecuted, and upon the evidence furnished by the patrol, fined £1 and 7s. 6d. costs or, in default, 14 days.



CORRESPONDENCE.

Self-Starters.

SIR,—In your issue of August 24th you published a letter written by Mr. S. F. Edge on the subject of Self-Starters. His comments on compressed air, spring type, acetylene gas starters, simply give us what is now, more or less, common knowledge, but it is when he attempts to deal with the electric type that his limited experience most shows itself, and your readers would do well to be guided in this respect by R.A.C. certificates, such as that just issued on the Cadillac type, and the experiences of users of this particular type.

Opinions of people who have used this outstanding success amongst self-starters in winter, "and after standing all night in the cold," are what your readers want, and they can be obtained from *any* user of the 12,000 cars delivered by the Cadillac Co. during the last twelve months. It is important to note that most of these cars are working in America, where the cold is far greater than here.

However, I can assure Mr. Edge that he need have no fear on this account, as the experience of the writer—the guardian of the Cadillac system in this country—is that it starts the engine every time on the coldest of days.

If Mr. Edge had had the successful experience that I and all other Cadillac users have had, I guarantee that after twelve months he would share my enthusiasm, and feel as I and they do—that a car which does not start itself, light itself, and ignite itself from one unit, is a back number amongst motor cars.

219-229, Shaftesbury Avenue, W.C. F. S. BENNETT.

A Complaint from Penge.

SIR,—The Works and General Purposes Committee of my Council have had before them complaints as to the great speed at which many motor cars and motor bicycles pass through Beckenham Road and the Anerley Hill, which are in this district.

Complaints have also been made by residents in the locality of the Anerley Hill that many motor cyclists ascend the Anerley Hill at a great speed, apparently for the purpose of carrying out speed tests, more especially on Sunday afternoons, and that it is not only a public danger, but also causes a nuisance by the noise created by the machines. My Committee feel that they will be compelled to make application for speed limits in certain parts of the District if motorists will persist in travelling at such great speed, but they have, however, directed me to communicate with the motoring journals in the hope that they will appeal to those readers who travel through this district to drive slowly through the Anerley Hill and Beckenham Road, which are both busy roads with many sharp turning, cross-roads and schools.

Trusting that you will see your way to give publicity to this appeal,

ARTHUR E. EVES,
Clerk to the Urban District Council of Penge.

September 9th, 1912.

Scottish A.C. Now 2,000 Strong.

THE Scottish A.C. is steadily adding to its membership, and we understand that the membership roll now boasts over 2,000 names.

The Institute of Metals London Meetings.

FOR the two days' meeting of the Institute of Metals in London on September 25th and 26th, the Headquarters will be the Institution of Electrical Engineers, Victoria Embankment, W.C., where a number of papers of great interest to metallurgists will be read and discussed each morning. The afternoon will be devoted to excursions to such places as Woolwich Arsenal, the National Physical Laboratory, and Brooklands. At the last mentioned place it is hoped to witness some flying, and with this end in view the Institute of Metals has put up a special prize. Full particulars regarding the meeting can be obtained from the Hon. Sec., Mr. G. Shaw Scott, Caxton House, Westminster, S.W.



A batch of Napier wagons which have been put into work by the War Office through the Hertford Street Motor Hiring Co., of Hertford Street, Mayfair, for work during the Autumn Manœuvres in connection with the latest section of the British Army, the Royal Flying Corps. A main purpose of these vehicles will be to keep in touch with the various aeroplanes directly they start out for scouting purposes, necessitating the making of short cross-country runs in every direction.

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VAUXHALL DOUBLE-VIEW HOOD.

AN improvement has been effected in the design of the Cape cart hoods which are manufactured by Vauxhall Motors, Ltd., of 180, Great Portland Street. Although it constitutes only a minor detail of the whole structure, it is said that it is greatly appreciated by users of open cars of this make.

Instead of the usual single window, consisting of a comparatively large frame of mica, the Vauxhall double-view hood has two lights in the rear, as is shown in the

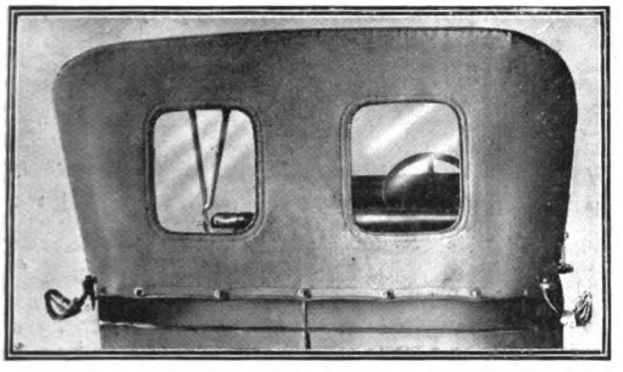
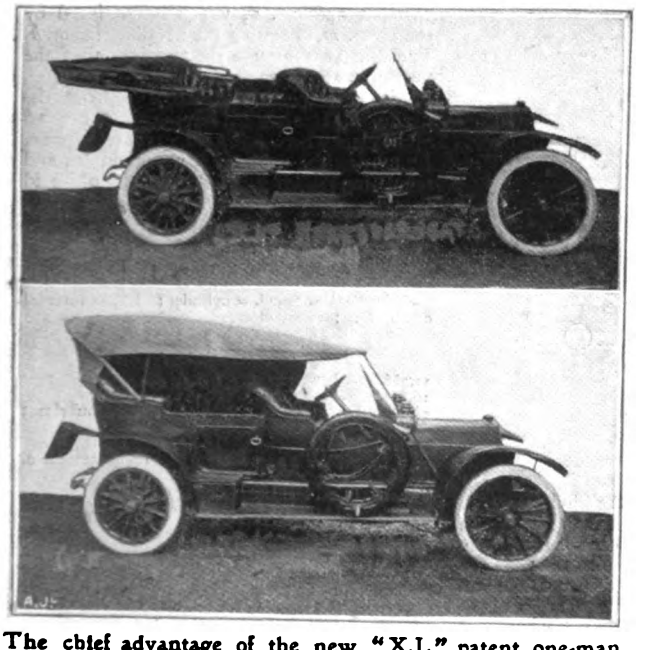


illustration. It is claimed by the makers that the effect of two windows is a considerable increase in the comfort of the occupants of the rear seats; they can command a better view of the road behind when there is any occasion to look in this direction, and, in addition, the interior of the car is much lighter than with only a single window. It can also easily be imagined that a smaller pane of mica is less liable to crack than a large one, and if it really does get damaged it can be replaced easier and at less cost.



The chief advantage of the new "X.L." patent one-man hood seen above is the absence of side supports, thereby giving an unobstructed view and facilitating entrance. It is worth an examination, and can be seen at the makers, 243, Railton Road, Herne Hill, London, S.E. The price complete (brassed or nickel), ranges from £16.

COMPANY DOINGS.

Belsize Motors, Ltd.

AT a meeting of the shareholders of Belsize Motors, Ltd., held at the Chartered Accountants Hall, Manchester, on September 4th, it was resolved to increase the capital of the Company to £250,000 by the creation of 100,000 new six per cent. cumulative preference shares of £1 each. In moving the formal resolution, the Chairman of the Company, Mr. G. P. Dawson, said that the operations of the Belsize Company had now grown to such an extent that it had become necessary to place the finances on a more permanent and satisfactory basis. Some time ago the rapid expansion of the Company's business necessitated increases of capital standing at short notice. The new capital would, he said, materially improve the interests of the Company. It was stated that the issue would be a public one.

BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1912.

In the trade returns for January, 1909, for the first time, *real* annual import and export trade totals were comparable, as, prior to 1908, no record was made of cars of travellers either coming into or leaving this country, the values and numbers being simply included in the export and import figures.

NOTE.—In our issue for January 13th, 1906, we published in one table the full figures of British Exports and Imports for 1902, 1903, 1904, and 1905. Prior to 1902, motor cars were not classified separately. In the issue for January 12th, 1907, the complete figures for 1906 were published; for 1907 in January 11th, 1908; for 1908 in January 16th, 1909; for 1909 in January 15th, 1910; for 1910 in January 14th, 1911; and for 1911 in January 13th, 1912.

AUGUST.	1911. August.		Eight Months ended August.		1912. August.		Eight Months ended August.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
IMPORTS.								
		£		£		£		£
Cars ...	465	127,201	4,476	1,184,493	512	144,536	5,961	1,392,796
Chassis ...	560	145,137	4,736	1,231,090	730	193,707	5,312	1,330,468
Parts ...	—	232,862	—	1,701,492	—	310,929	—	2,198,362
	1,025	505,200	9,212	4,117,075	1,242	649,172	11273	4,921,626
Motor cycles	83	2,597	1,098	34,096	121	3,741	1,041	33,426
Parts ...	—	4,875	—	45,555	—	10,827	—	81,563
	1,108	512,672	10310	4,196,726	1,363	663,740	12314	5,036,615
EXPORTS.								
Cars ...	274	105,182	2,456	981,815	407	154,917	2,983	1,154,881
Chassis ...	48	20,122	433	182,678	83	32,056	689	258,755
Parts ...	—	68,407	—	688,808	—	105,250	—	778,812
	322	193,711	2,889	1,853,301	490	292,223	3,672	2,192,448
Motor cycles	537	19,497	3,795	139,786	1,388	56,857	7,364	295,316
Parts ...	—	5,990	—	41,632	—	18,788	—	106,026
	859	219,198	6,684	2,034,719	1,878	377,868	11036	2,593,790
FOREIGN AND COLONIAL RE-EXPORTATION.								
Cars ...	65	18,070	623	167,357	104	34,358	575	182,618
Chassis ...	43	13,173	187	58,421	42	11,659	375	103,948
Parts ...	—	15,185	—	144,520	—	19,287	—	164,021
	108	46,428	810	370,298	146	65,304	950	450,587
Motor cycles	4	202	62	2,349	12	560	82	3,543
Parts ...	—	1,220	—	4,037	—	614	—	5,447
	112	47,850	872	376,684	158	66,478	1,032	459,577

Note.—Total number of cars (including touring and other cars not for sale) during August, 1912—

Imports—943 (total for 1912, 8,495), value £429,278 (total for 1912, £3,041,030).

Exports—769 (total for 1912, 4,188), value £373,309 (total for 1912, £1,885,794).

Foreign and Colonial re-exports—331 (total for 1912, 1,412), value £186,909 (total for 1912, £723,551).

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ROUNDABOUT NOTES.

ANOTHER victory for a Sunbeam car is reported by a cable from Johannesburg, the competition for the Park Club Trophy having been won with a 12-16-h.p. "sporting" Sunbeam. The contest, which was open to trade as well as amateurs of the club, was over a route from Johannesburg to Potchefstroom on the first day, returning on the second, and the maximum speed was restricted to 30 m.p.h.

The experience of motorists who have had their cars equipped with Polyrhoe carburettors appears to be extraordinarily satisfactory. Among scores of testimonials received, one from the owner of a 45-h.p. car, who had tested four different carburettors, and finally kept the Polyrhoe. This made his 45-h.p. a totally different car to drive. He had easier starting, and double the accelerating power. On a certain hill the car was ten miles per hour faster owing to quicker pick-up after slowing for corners, and was two miles per hour faster on the flat, while the petrol consumption was increased by 2 m.p.g., and could have been still further improved.

IN the competition for the Reyersbach Trophy in South Africa, the 8-10 two-seater Phœnix was the lowest powered car, but it came out sixth on formula. Its fastest lap of 26·35 m.p.h. compares favourably with that of the winner, 35·65 m.p.h., considering 21 sluits had to be crossed during the 21-mile circuit, which was traversed five times.

THE 15·9-h.p. Star which recently set up Class E records at Brooklands was fitted with Goodyear Detachable Wheels, which gave complete satisfaction, and in a letter to the Goodyear Motor Wheel Co. the Star Co. say they are so pleased with the wheels that they hope to use them on future occasions.

DUNLOP tyres were fitted to the record breaking Star car, and provided another proof of the speed and reliability of these tyres.

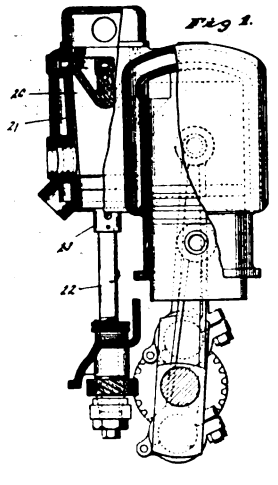
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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

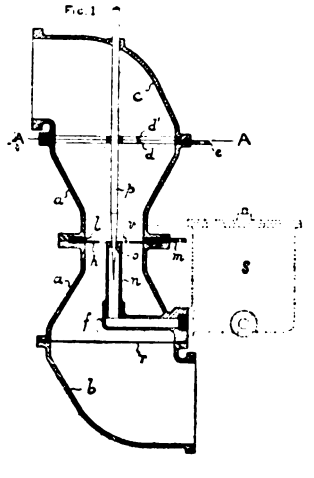
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

18,344. August 14th, 1911. Improvements in Valves. E. L. Russell, Arcade Building, Cleveland, Ohio, U.S.A. This invention relates to valves of the type in which the initial movement of the operating member effects the movement of the valve away from its seat to reduce the friction between the valve and seat, the valve being normally held closed by spring action. Fig. 1 is a vertical section of the valve and part of engine, with the improved valve actuating mechanism. 20 indicates the valve of the plug type, 21 the seat member of the valve, and 22 a shaft rotating in one direction and forming a part of the train by means of which the valve, 20, is to be moved on its seat. Secured to the end of shaft 22 is a driving member, 23, provided with an auxiliary extended flange, 24, having two opposed axially extending cam slots (or screw threaded portions), 25. The valve is provided with a pocket, 26, adapted to receive flange, 24, and extending across this pocket is a bar, 27, upon which



are journalled two rollers (28, 28) adapted to be received in the cam slots, 25. The driving member, 23, is provided with a pair of opposite radially extending ears (29, 29), which form abutments for two coiled compression springs, (31, 31), placed around the valve, which, at their opposite ends, abut against plugs mounted in the outer end of pocket, 26. When the shaft 22 is at rest, springs 31 are under compression, and tend to rotate the valve, 20, to drive the rollers, 28, further into the cam slots, 25, so as to thus force the seated member to its seat with a yielding force. In operation, the force applied to rotate shaft, 22, will, in its application to the valve, 20, be divided into two components by the cam slots, 25, and rollers, 28, one serving to lift the valve from its seat, and the other operating through springs, 31, to keep the valve within its seat. If, therefore, the resistance to movement of the valve be greater than normal, the initial movement of the driving member will operate to raise the valve from its seat, thus reducing resistance to movement, but only reducing that resistance to a point where the springs, 31, and the interaction of roller, 28, and slot, 25, are capable of producing the shifting movement.—August 21st, 1912.

18,246. August 12th, 1911. Improvements in Carburettors or Fuel Mixing Chambers for use in connection with Internal Combustion Engines. T. L. Bainbridge, Holmwood, Jesmond, Newcastle-on-Tyne. This invention relates to improvements in carburettors for use in connection with inter-



nal combustion engines of the kind in which the amount of fuel sprayed or otherwise introduced into the mixing chamber and the quantity of air passing therethrough can be varied and controlled either in combination by the same lever or separately by independent levers if so desired. Fig 1. is a sectional view of the carburettor. *a* is the mixing chamber, which is circular in cross section and reduced in diameter towards the middle portion, *b* the inlet branch, which may be omitted if desired, and *c* the outlet branch. The mixing chamber, *a*, is constructed in two parts, the upper portion having a throttle consisting of a fixed disc, a^1, and a movable disc, *d*, which is controlled by the lever, *e*, projecting through the side of the chamber working in a slot. The lower portion of the chamber containing the fuel inlet, *f*, and nozzle, *n*. At the point where the upper and lower portions of the mixing chamber, *a*, are connected there is an iris diaphragm, *h*, which is operated by the disc, *l*, and the lever, *m*, extending through the side of the chamber, *a*. The nozzle, *n*, consists of a tube screwed into the inlet, *f*, and having an outlet, *o*, provided with the tapered end of a spindle, *p*, which passes through the throttle, *d*, and outlet branch, *c*, and is endways adjusted. For the purpose of preventing the admission of dust into the mixing chamber, *a*, a wire gauze sieve, *r*, is provided at the inlet. The float chamber is in dotted lines, *s*. Air is drawn by the suction effect of the engine to which the branch, *c*, is connected, through the inlet, *b*, and sieve, *r*, into the mixing chamber, *a*, wherein it passes through the variable opening, *v*, which is regulated by the lever, *m*, operating the iris diaphragm, *h*. Fuel is drawn through the opening, *o*, of the nozzle, *n*, and by so arranging the diaphragm, *h*, in a plane with the outlet from the nozzle, *n*, maximum air velocity is created at the place where the liquid leaves the nozzle. By moving the spindle, *p*, up or down, and regulating the lever, *m*, the quantity of liquid vaporised may be regulated in accordance with the quantity of air passing.—August 21st, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published September 12th, 1912.

11,786. A. LIWENTHAL. I.C. engines.
16,654. H. B. STOCKS. Spare wheels.
18,886. DAIMLER MOTOREN GES. Lubricant pumps.
20,993. M. D. RUCKER. Elastic tyres.
21,198. F. W. FARR. Repair or reinforcement of tyres.
21,451. H. A. MILLER. Carburettors.
24,683. RILEY CYCLE CO. AND A. R. GRINDLAY. Spare wheel carrier.

Applied for in 1912.

Published September 12th, 1912.

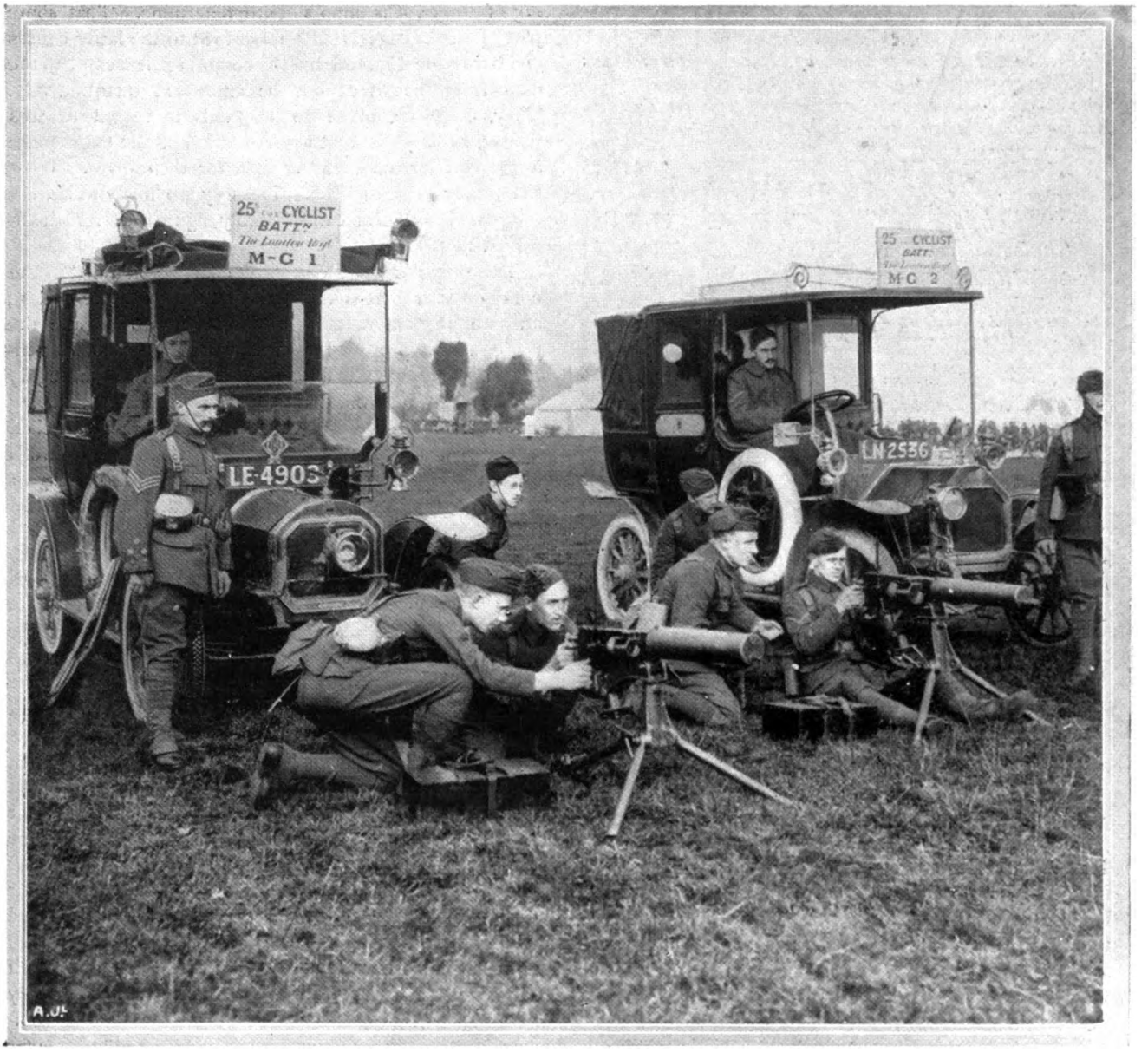
3,314. GEB. SULZER. Starting I.C. engines.
5,133. F. G. GARRETT. Spring shackle.
6,062. I. KOUTKINE. Sparking plugs.
7,333. CONTINENTAL CAOUTCHOUC AND GUTTA PERCHA CO. Inner tubes.
9,327. F. H. BEAMER. Resilient wheels.
10,145. E. ROMANOWSKY. Reservoir for fuel injection air in combustion engines.
11,638. W. J. CUNNINGHAM. Wheels.
12,621. T. C. TIEDEBOHL. Metallic wheels.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 611. (No. 38, Vol. XVII.)] SEPTEMBER 21, 1912. [Weekly, Price 3d. Post Free, 3½d.



TAXIS AT THE ARMY MANŒUVRES.—A couple of these handy vehicles attached to the 25th County of London Cyclists at Bury St. Edmunds. The maxim guns are conveyed from point to point on these cars, and when the necessary spot is reached they are ready for action in less than a minute.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

EDITORIAL AND GENERAL OFFICES:
44, ST. MARTIN'S LANE, LONDON, W.C.
Telegrams: "TRUDITUR," London.
Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
	s. d.	s. d.		s. d.	s. d.
United Kingdom	3 6	7 0	United Kingdom	7 0	14 0
Abroad	6 6	13 0	Abroad	10 0	20 0

Remittances.

Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

The Report of the Rating Committee.

As might easily have been anticipated, the report of the Treasury Committee appointed last December to consider the basis of rating for taxation purposes, is all in favour of leaving things as they are. It must be kept in mind that the business of the committee was not to advise upon the classification of cars for taxation nor to discuss whether some other basis than that of horse-power rating could with advantage be substituted for that now in force, but simply to consider whether or not the R.A.C. formula of D^2N is the best and most workable for arriving at an arbitrary result. They have decided that it does fill the bill sufficiently well for all practical purposes, and therein we think they have shown wisdom. To the pedant the formula is anathema, and we are bound to agree that it provides no more than a rough and ready comparison between motors of varied type. But for the purposes of a tax rating it has the essential merit of simplicity, and moreover it furnishes a rating which, despite all that its detractors have to say about it, is eminently fair to the taxed.

The committee's report furnishes but cold comfort for the owners of ancient cars who think they have a grievance in being mulcted in equal taxes to those paid by the possessors of more modern and therefore more efficient cars. The report sets forth that the committee find it impossible to pronounce any very definite opinion. There is no doubt, they say, that in many instances the power of cars five years old or more is now much below the rating, but how far this is due to wear and how far to improvements in design, and in particular to the lengthening of stroke, it is impossible to determine. That some part of the change is to be ascribed to the latter causes can hardly be doubted, but the committee has come to the conclusion that it cannot be expressed quantitatively. They, therefore, make no proposals in regard to this matter, as they feel that any reduction of the tax is more a question for the Treasury than for themselves. What the tender mercies of the Treasury are likely to be, the owners of old cars can probably figure out for themselves.

The only recommendation of change contained in the committee's report is that in reference to motor cycles; and we imagine that there will be few to dispute the justice of the proposed change in the method of classification. The suggested basis seems to us to thoroughly cover the ground, and certainly has the merit of removing what was an undoubted anomaly. The motor cyclist, owner of a high-powered mount, will doubtless regard it as a hardship; but all taxation ranks more or less as that, so they must take what comfort they can from this reflection.

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The Problem of Petrol Supply.

In our correspondence column will be found a letter from a well-known firm in the motor trade, protesting against the latest move of the A.A. in connection with the high price at which petrol now stands. The facts which have led up to this protest, which it may be said has a certain amount of justification, are briefly these. In the course of the long and sometimes heated discussion in the pages of the technical Press which culminated in the appointment of the Petrol Committee to consider ways and means of regulating the price of fuel, the suggestion was made, and found considerable favour, that the R.A.C. and the A.A. should, for the benefit of their members, arrange for the supply of fuel at a standard price which should show a reduction upon that charged at the time. The main purpose of the proposal was, if we understand it rightly, to put a check on the constantly upward trend of prices by entering actively into competition with the great distributing companies. To enter

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upon any such course opens up many avenues of criticism of the policy of either or both of the bodies to which reference has been made. As a matter of fact, the disabilities have been argued out, pro and con, at considerable length, so that they need not concern us at the present juncture. Apparently, the A.A. executive holds the opinion that it would be quite feasible for them to enter into the sphere of trade—a distinctly objectionable move on their part, but that is what it all amounts to—and arrange for the supply of fuel to the members. Having satisfied themselves of this, the next thing obviously is to get at some idea of the magnitude of the undertaking upon which it is proposed to launch. To that end, therefore, the A.A. has circularised its membership, asking each to state whether he or she would be prepared to take their supplies from the Association at an agreed price, irrespective of any competition, during the next three years, and to name the quantity for which they would be prepared to contract. The price named, by the way, is 1*s.* 2*d.* per gallon, inclusive of duty. It is this action by the A.A. which has called forth the protest to which reference has been made.

Not being in the inner councils of the A.A. Committee, we do not know just how seriously to take the circular, but for the purposes of the argument we must assume that the Association knows exactly what it is doing; that it is sure of its sources of supply; that it can contract for all the spirit it is likely to need at the right price, and that it can see its way through the distribution problem. That being so, we are not at the moment concerned with the practicability or otherwise of the scheme. It may be remarked, by the way, however, that according to the evidence of the petroleum companies' representatives given before the Petrol Committee, the sources of supply would be rigorously closed to any combination of motorists seeking to break down the methods of the trusts, and in such combinations it would seem that the A.A. would be included. However, as we have said, the A.A. is probably sure of its ground in this matter, which, in the light of all that has been said, is distinctly interesting.

Now, as to the point raised by our correspondents that this action of the A.A. would constitute unfair trading. The matter is a very difficult one to argue, because there are at least two main points of view. In the first place, there is the motorist to be considered. He finds the price of an essential commodity being ever advanced against him without any apparent reason except the desire of the producers to make heavier profits. He can get no assurances from anyone that this policy of increased prices is not to be pursued until absolute breaking point is reached. Self-preservation being the first law of nature, it is only in accordance with that law if he proceed to protect himself by all and every means in his power. If, therefore, the A.A. can supply him at a reasonable fixed price, which will remove his anxiety for a term of years, then it is difficult to find arguments against his taking advantage of the facilities his own combination offers him. We cannot lose sight of the fact that it is a combination of a hostile character which has led up to the proposition that motorists should co-operate in their own defence, and a combination, be it said, that, so far as it has thought fit to express its views on the situation, is not moved by any particular feeling of compassion for the motorist. On the contrary, the latter has been told in so many words that he is being treated too well.

We cannot help feeling that our correspondents have somewhat confused the issues. They themselves—which is to say the trade at large—appear to us to be riding in the same cart as the private user. They pay the wholesale price decreed by the distributing companies, and retail the spirit to the private consumer, pocketing the very modest profit of twopence per gallon as recompense for all their outlay and trouble—little enough, in all conscience. We are perfectly confident that no motorist, unless he be as mean as the proverbial—but never mind the simile—grudges the retailer his profit, but he most certainly does jib at the policy of the oil trusts. That is where it pinches the retail trader and the user alike, and greatly as we sympathise with the former in the loss of trade to which the successful issue of the A.A. policy would entail upon him, we should be less than human if we had not at the same time a little of that sympathy left for ourselves in our *rôle* of private motorists.

As we have inferred, both trade and motorist are at present the joint victims of what may very justly be called, borrowing the term from our correspondents' letter, unfair trading, and each must take its own measures to combat the evil. It is no use their falling out between themselves about it; the genesis of the trouble lies in a direction outside the control of either party, and each must take the measures that seem best. We have written thus plainly on the subject, because we can see that no good end would be served by pretending that things are not as they are.

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The Death Knell of British Railways.

Under this heading the current issue of the *Review of Reviews* publishes a striking article on the hideous inefficiency of our present railway system, with its enormously expensive working and chaotic conditions. The denunciation is one of a most scathing character, and, accompanied as it is by facts and figures, gives one furiously to think upon whether the author is not very nearly right when he advances the opinion that the motor must supplant the railways. "The railways may be good," says the writer, "or they may be bad, as to their permanent way, but there is no question that the high roads of the country are excellent and well kept up. They should be the arteries along which the produce of the countryside should flow towards the centres of consumption. The railways have developed an extraordinary centralisation upon London, and the producer has come to think that there is no real market save the Metropolis . . . Once the roads are accepted as the natural channels for the carriage of goods, then, inevitably, local centralisation will take the place of the present undue

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rush to London . . . Just as the road is the natural channel, so the light motor van or lorry is the ideal vehicle for the development of this country. It will enable produce to be transported, with a minimum of handling, from the home of the producer to the centre of consumption. The rate of actual running will be approximately that given for goods trains—20 miles an hour, but there will be no waste in shunting, marshalling in trains, and discharging . . . Railways cannot hope to compete with organised motor traction locally centralised."

The question next arises in the mind of the writer as to how the producer is to be induced to buy his motor lorry, and how he is to afford it. The answer is held to be that the solution is supplied by the recently issued War Office scheme for subsidising industrial motor vehicles. To some extent we are inclined to agree, but we can see much more hope from comprehensive schemes of organisation thought out and applied by motor traction companies, specialising in the business and devoting their whole time and attention to it. There are many other questions bound up with the successful issue of a motor traction enterprise than the mere delivery of goods or produce to a given centre, and to some extent we think the writer in the *Review of Reviews* misses this very essential point. However, he has given us an exceedingly interesting article which must provide food for thought to everyone who is the least interested in railways or traction enterprises of any kind. That the railways must go sounds like a very daring, not to say visionary, prophecy—and yet, who can tell? It is only a decade ago that those of us who had faith in the ultimate triumph of the motor over the horse were accounted mad for our pains. And where stands the horse in the scheme of organised traffic to-day? Fast disappearing, even from the country roads, discredited altogether on the score of hopeless and extravagant inefficiency, his place is being daily taken by the once despised motor vehicle at a rate that makes him more and more of a curious survival every day. And is it too far-fetched to speculate upon the possibility that what the railway did for the stage coach and the canal boat and the light motor vehicle for the horse, the heavy motor car may do for the goods train? We think not.

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The Growth of the Clubs.

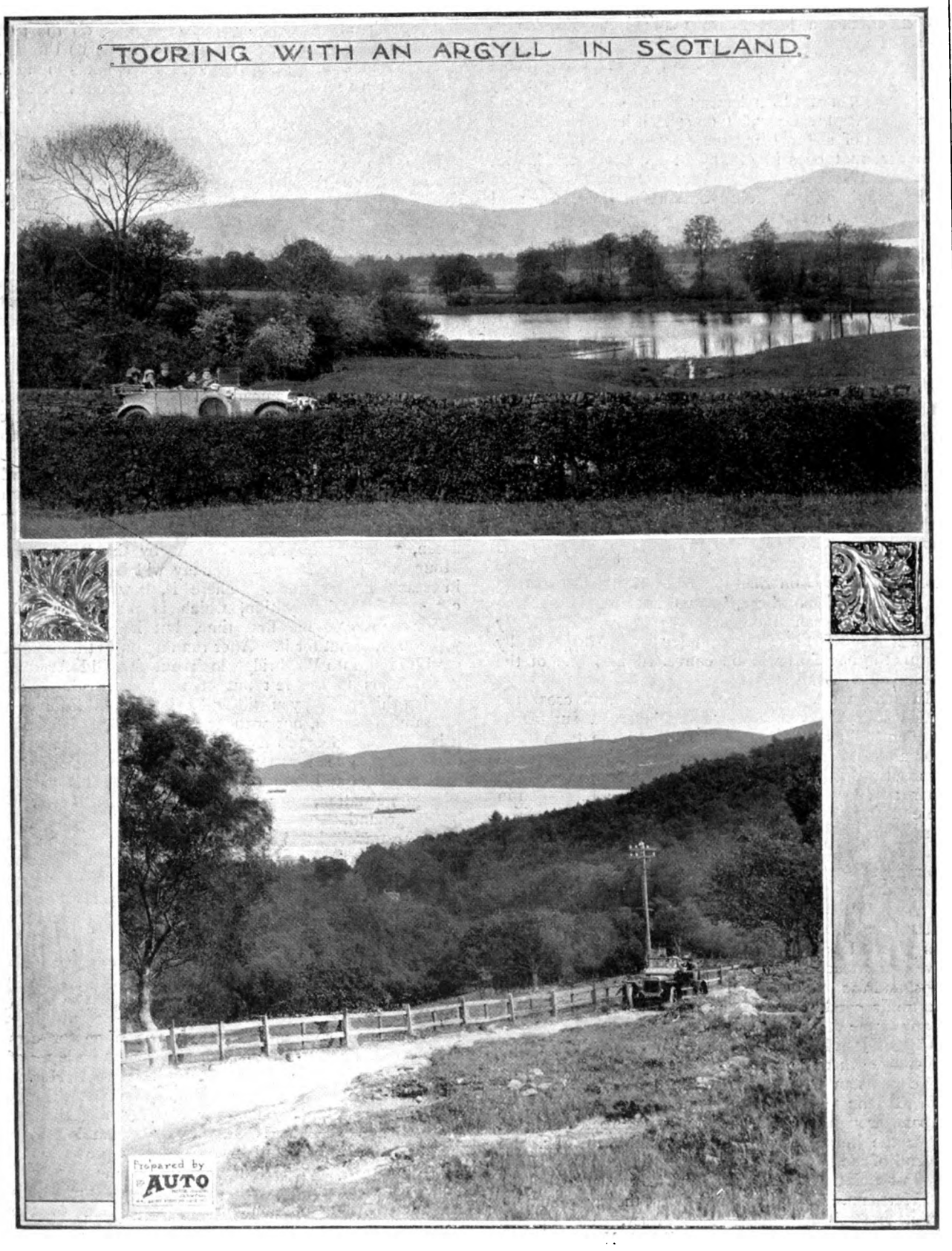
To those who have the good of the movement at heart, there is something particularly gratifying in the signs of progressive growth of interest, of which the figures published in the current R.A.C. *Journal* are eloquent. During the past three or four years there has been some reason to fear that the race of motorists, as opposed to those who merely use the car as a convenient mode of locomotion, was in some danger of extinction. On all hands we heard complaints from club executives that it was becoming increasingly difficult—almost hopeless, in fact—to arouse anything like interest, let alone enthusiasm, among their members in any club doings or competitions. Not only so, but the rate of increase of membership, where any increase could be shown, was far too low for the health of the body corporate. In a word, it really looked as though something in the nature of a state of inanition had set in, and the pessimistic prophets foretold that the end of clubs and club life was at hand.

The present year has, however, put rather a different complexion on all that, though even yet it cannot be said that the upward movement is all that could be desired. Eliminating the numbers of new members of the R.A.C. and of individual associates, there is shown a net increase of, in round numbers, some 4,800 in the membership of the various clubs and associations. Of these the Auto-Cycle Union accounts for rather more than 3,000, so that the net figures of increase for local and provincial organisations are about 1,600. Thirty-six clubs are able to show an increased membership, while six have to admit a decrease. While these figures are not precisely startling, they do indicate that the current of adversity has been stemmed, and that matters are once again on the up grade.

In seeking for the causes of this upward movement, we need go no further than the R.A.C. itself. The history of the year's relationship between the parent body and its offspring may really be summed up under the heading of increased advantages of membership. We need not specifically mention wherein the Club has given better value for subscriptions received—we are not briefed as special pleaders for the Club—but the benefits extended are certainly immeasurably greater than they were a twelvemonth ago. Indeed, as a simple business proposition it is difficult to see how they could be any greater—in fact it is simply wonderful that it can be done for the money. The moral to be drawn by the provincial executives is, we think, that it is with them to take advantage of the rising tide and to make the most strenuous efforts during the off season that is before them to bring in all the unattached motorists in their respective districts and weld them into one cohesive whole. We have so often preached the doctrine of solidarity within the motoring ranks that to elaborate the point again would perhaps be redundant. Moreover, it is unnecessary, from the point of view that everybody who is actively interested in the movement realises to the full that we still need unity—indeed, we should be disposed to argue that we want it more than ever. The columns of the Press from day to day afford quite sufficient indication that there is still pressing necessity for us to present a single front in matters touching our interests, and only by making our associations strong and thoroughly representative can this be done. Unfortunately, as the cult of the car grows, so what we may call motoring patriotism is inclined to decrease, and it is only by appealing to the commercial instincts of the motorist that he can be induced to come in. However, it does not matter much upon what basis we secure his adhesion to one or other of the automobile organisations so long as it is secured. That is what the various executives must keep in mind, and it is on those lines that they must work if they desire to see the growth, which has apparently set in, maintained.

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WITH THE CAMERA AND THE CAR.



A COUPLE OF ARGYLL CARS ON TOUR IN SCOTLAND.—The upper photograph shows a Colonial type 15-h.p. on Whistlefield Hill, with Loch Long in the background; and below is a 15-30-h.p. Argyll single-sleeve-valve car near Endrick Water, in the background being the Luss Hills and a portion of Loch Lomond.

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A PICTURESQUE ROAD TO BROOKLANDS.

In describing a little-known road to the Brooklands Track I am endeavouring to serve a double purpose. I am not only showing a new road, which in itself constitutes a welcome change for all those who frequently travel there, and which leads through some really fine and picturesque scenery, but one which has the additional advantage of so far being quite free from police traps, which cannot be said of any of the other well-known routes to Weybridge.

In addition to the advantages referred to, the road which I am about to describe is by no means very much longer than any of the three best known routes. I do not know the exact mileage of it, but I believe that it is not more than two miles longer than either the road through Esher, or the one along Hurst Park and through Walton, and I believe that it is even slightly shorter than the way through Cobham. For the sake of this description we will start from the Marble Arch, take the Bayswater Road through Notting Hill and keep straight on to Shepherd's Bush through Goldhawk Road, Chiswick High Road to Kew Bridge. After crossing the bridge at the end of Kew Green, turn to the left into Mortlake Road and take the first on the right, Cumberland Road, which leads you into Sandycombe Road. Go right to the end of Sandycombe Road, but instead of crossing the railway bridge at the end of this road, turn to the right into Lower Mortlake Road, a rather dismal looking thoroughfare, that leads you into Richmond, near the station. I have advocated this way through Sandycombe Road for the reason that the main Kew Road leading along the gardens where the old horse trams used to run is at the present moment under repair. I sincerely hope that when these are completed this disgracefully bumpy thoroughfare will be converted into one of the finest exits in London.

In Richmond, follow the main road and cross the bridge into Twickenham, where the road surface is excellent, follow the tram lines right into the town until soon after passing the junction of the two tram lines you turn to the left, where a signpost indicates to Hampton Court; follow this road straight along, it will lead you in the end into Teddington, where you cross the tram lines at right angles and follow the wide road you meet on the other side until you come to the gates of Bushey Park. Go right through the park, and after leaving it on the other side, turn to the right and follow the tram lines as far as Hampton Court.

I am quite aware that there are other, shorter roads to this place from various parts of the Metropolis, but I have found that none of them are quite free from police traps, and the one described here, as far as road surface and traffic conditions are concerned, is at least as good as any of the others.

Cross East Molesey Bridge, keep straight on through the village, where one of the few really justified—if under any circumstances they can be justified—10-mile limits is in existence. No self-respecting driver would attempt to pass through the narrow and winding road at a pace above the limit during the busy hours of the day. At the end of the village, in the centre of the cross-roads, a signpost pointing to the right indicates to West Molesey and Hersham. Take this turning past the police station, and keep straight on into West Molesey, where a pretty village church, with an old castellated Norman tower will attract your attention. Three roads radiate from this point, and we take the narrowest that passes between the church on the right, and the lamp-post on the left. We soon find ourselves on a road that leads us through pretty rustic scenery; it has a good surface, but is winding, and caution should be exercised at the corners. At the village of Rydens the road passes under the L. & S. W. R., and soon afterwards leads into Hersham, where those who are used to travel *via* Esher will find themselves on well-known ground. But at the Hersham village green do *not* take the tarred road on the right, but keep on the left and take the road with a sandy surface, which passes between the pond on the left and the school on the right. This will lead you only about half a mile out, but you are well repaid by the beautiful scenery that you encounter. After going carefully by the school and church you have an opportunity of making up for lost time on the magnificent straight piece of road that rises gently for about a mile. There is only one turning out of this road—about half-way up the hill—which should be passed carefully, in case of any traffic turning up in the blind corner. A fair idea of this piece of road can be gathered from our illustration that shows a good part of this straight. At the end of this road turn sharp to the right, and you will find yourself on a similar straight stretch, with a tarred surface. Follow this down, and take the first turning on the left—sandy surface, which leads you into the main road from Hersham to Weybridge. You can follow this road right down to the green, where you turn to the left by the "Stag and Hounds." After this no difficulty will be experienced in reaching the track. There is, however, a short cut to Weybridge station, which is perhaps a little difficult to find the first time, but it is well worth while looking out for it. After running on to the straight road leading into Weybridge look out for Old Avenue, which leads to the left out of the main road. After passing this turning you will find a similar road leading in the same direction, but without a name-plate. I believe it is called St. George's Avenue, but there is nothing at this corner to lead you to this conclusion. Take this nameless road and follow it right along; it leads you to Weybridge station, where again you find yourself on well-known ground.

I have travelled this road for the last four years on my perambulations to and from the track, and at all times of the year I have found its surface in a state to which no one could reasonably take exception. There is very little traffic, and in case of emergency you can get there in a remarkably short time.

"N.S.C. 16."

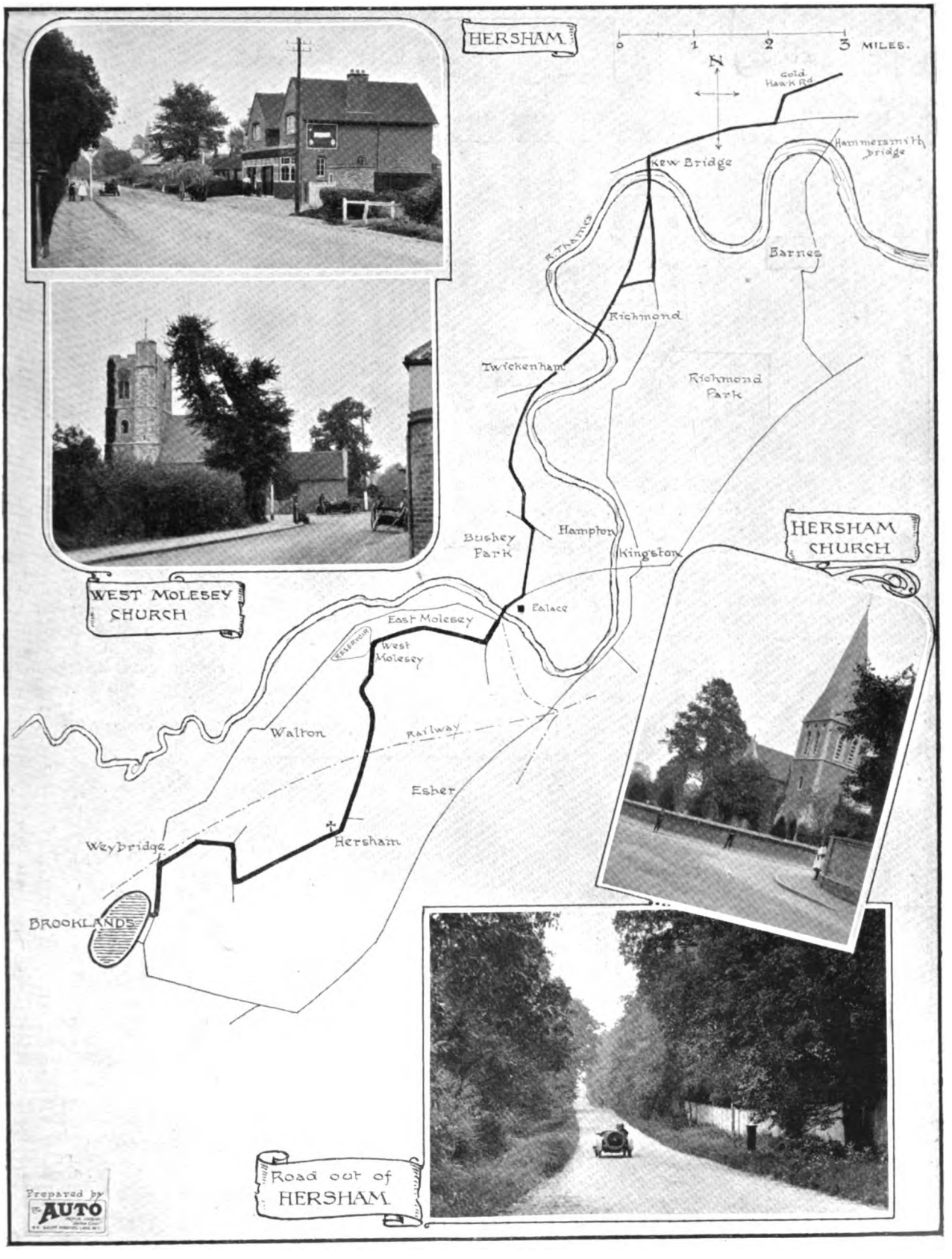
Chauffeurs and the Insurance Act.

A POINT of some interest to drivers of motor cars has been obtained by the R.A.C. In reply to a letter of enquiry sent by the Club to the National Health Insurance Commission, the Commission states: "A chauffeur whose employment involves cleaning the car and doing small repairs is deemed to be employed by way of manual labour, and the compulsory provisions of the National Insurance Act (Health Insurance) apply to him, whatever the rate of his remuneration." This corroborates the opinion already expressed to the National Society of Chauffeurs.



For all Cars and Addresses see Directory weekly.

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A Picturesque Road to Brooklands.

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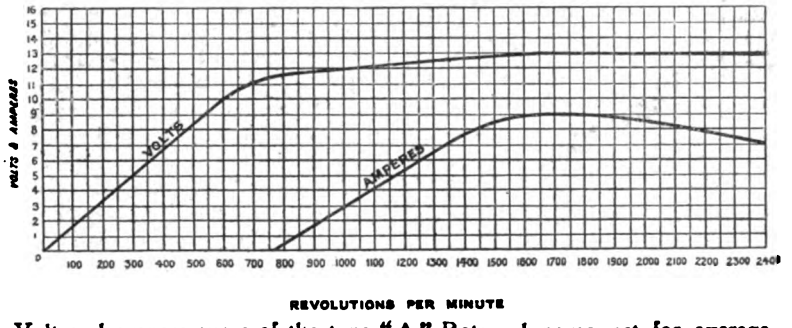
DYNAMO LIGHTING SETS.—II.

THE ROTAX-LEITNER.

LARGE and varied experience in train illumination has been an inestimable advantage to the designer of the Leitner car dynamo, which is, in fact, in some ways a model in miniature of that used for many years past to supply the lamp circuits on trains. The problems involved in both instances are similar, and the fact that the Leitner system has "made good" in its adaptation to the large type, is an excellent recommendation for the smaller installation now built for cars.

No mechanical or electro-mechanical apparatus is used for the automatic control of the output, which is effected by a couple of extra brushes connected to the shunt field windings of the dynamo. At slow speeds the current, or more properly voltage, produced at the subsidiary brushes is in series with the field and thus increases the excitation of the latter. As the speed increases, however, the armature flux distorts the main field more and more, and in consequence the voltage of the secondary brushes decreases until zero is reached; it then becomes negative or reversed. In other words, counter E.M.F. is introduced into the field circuit. Increases in speed and load produce proportionate increases in this negative energy, and thus keep the voltage on the battery practically constant. At the same time, it is found that the ampere curve tails off slightly at the highest speeds.

Owing to the fact that the dynamo is frequently stopped or running at so slow a speed that hardly any current is generated, means must be provided for disconnecting it from the batteries under these circumstances, in order to save the current from the latter being wasted by discharging through the armature windings. An automatic switch of the opposed double magnet type is used to close the circuit when the dynamo voltage



Volt and ampere curve of the type "A" Rotax dynamo, set for average night *and* day running. The output, of course, may be altered if necessary by altering the position of the brushes.

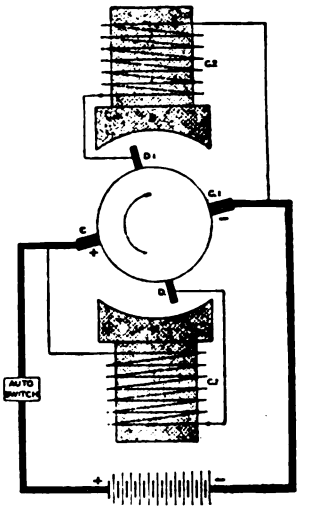
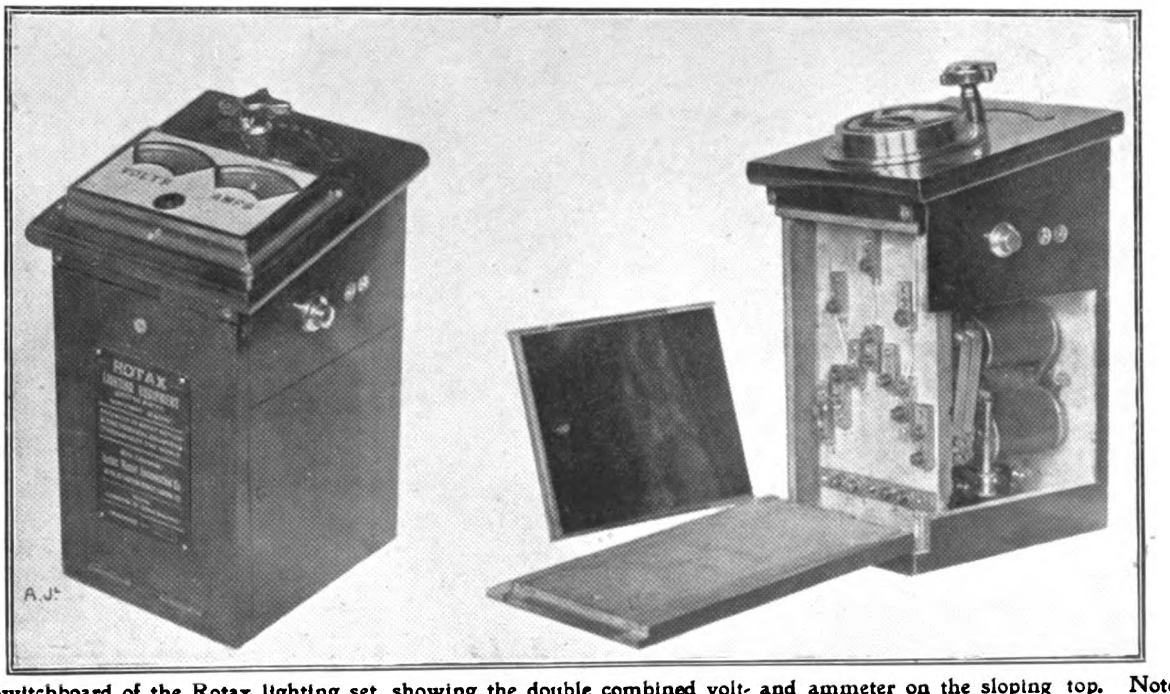


Diagram of the wiring of the brushes and auxiliary brushes in the Rotax-Leitner dynamo.



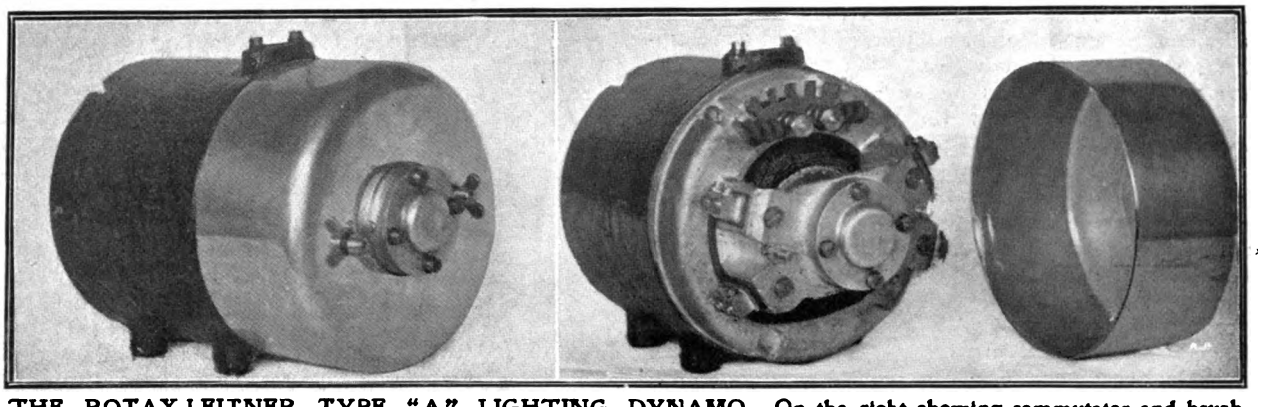
Switchboard of the Rotax lighting set, showing the double combined volt- and ammeter on the sloping top. Note the emergency excitation button at the right side. On the right the board, opened to display automatic switch, and the easily accessible internal wiring.

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exceeds that of the accumulators, and to cut out when the battery circuit is stronger than that from the generator. In the XA and A types of machine, the cutting-in speed is arranged to be at about 700 r.p.m., the dynamo being geared to run at approximately twice engine speed. A slender spring is used to adjust finely the movements of the contact maker, and is set by a thumb-screw. This auto-switch is contained inside the switchboard, in which all the wiring and distributors are carefully enclosed, so that they may be readily inspected. On the sloping top is a double combined volt and ammeter, above which is situated a single rotating switch, which, with five alternative positions provides for all combinations of lighting or charging. The switch is so arranged that during daylight running, when the accumulators are to be charged, only about three-quarters of the dynamo output is allowed to pass into the accumulators, as when the switch is in the position for daylight charging, a coil resistance is cut in, to avoid a too heavy charge. As soon, however, as any lights are thrown into circuit, this resistance is disconnected, the five positions of the switch being therefore :—1. *Off.*—Dynamo cut right off. 2. *On.*—Three-quarters of dynamo circuit used for charging the battery. 3. Side and tail lamps on, full current used for charging. 4. Head and tail lamps on, full current as before. 5. Head, side, and tail lamps alight, full current for charging.

In addition to the meters, auto-switch and switch, the board is also fitted with plug sockets for inspection lamps and horns, or the like, and an emergency excitation button, the momentary depression of which causes sparking at the brushes and thus cleans the commutator, should this be necessary. Both battery and dynamo circuits are protected from possible damage by a fuse.

The batteries for use with the Leitner Set are, of course, of special design, the positive plates being of the Planté type, no pasting being employed. In addition to being well able to stand heavy rates of charge and discharge, they are specially packed to resist vibration. As an indication of the state of the charge, four beads are provided inside the accumulator case, which rise or fall according as the specific gravity of the acid does likewise. If all four are at the top, the sp. g. is too high, and pure water must be added, while three beads indicate that the cell is about fully charged. Two beads at the top indicate that the cell is about two-thirds charged, and one and none respectively mean that there is one-third of the capacity remaining, and that the battery is practically fully discharged. According to the percentage of daylight to night running expected, the batteries supplied may have capacities of either 20, 30, 40 or 55 ampere hours. The weight of the dynamo complete is about 19½ lbs. for the 120 watt, type A, and 17 lbs. for the 60 watt, type XA.



THE ROTAX-LEITNER TYPE "A" LIGHTING DYNAMO.—On the right showing commutator and brush holders.



"Auto." (Yellow Cover) Copyright.

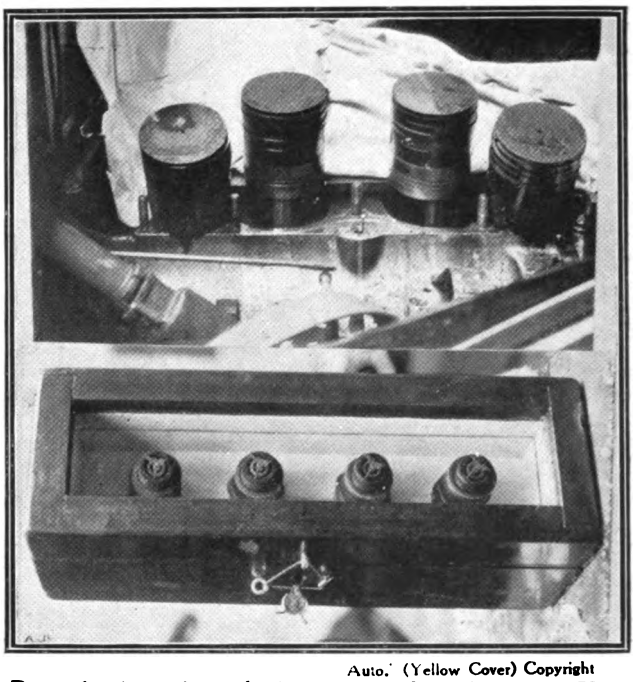
STEWART-MORRIS PARAFFIN CARBURETTOR TRIAL.—The Pathfinder car on the track and on the test hill during the trial.

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THE STEWART-MORRIS PARAFFIN CARBURETTOR TRIAL.

UNDER the ægis of the Royal Automobile Club a trial of distinct interest has just been concluded by the Stewart Precision Carburettor Co., who have acquired the sole rights to the Stewart-Morris Paraffin Carburettor. The carburettor was fitted under the superintendence of the company's engineer, Mr. Douglas Greig, to a Pathfinder car of 27-h.p., which hitherto had been used solely on petrol and was never designed for anything else. The test started on August 30th, with a road trial of 1,000 miles, and although the official figures for fuel consumption are not yet to hand, we have good reason to believe that the car, which has an engine of 105 mm. by 133 mm. stroke averaged well over 20 miles to the gallon of paraffin. After the conclusion of the road test, the car was taken to Brooklands on September 6th, where it was subjected to every conceivable test possible. The first two days on the track were taken up by so-called trip tests, consisting in slow running on top gear, acceleration tests, hill-climbing, and slow running with the engine idle. The consumption of fuel was ascertained in a most thorough-going manner. The car was driven at various speeds rising from 10 miles to 35 m.p.h. in stages of five miles per hour, and the consumption measured at the different speeds. Although we have not yet seen the official results, we gathered that at an average speed of 25 m.p.h. the fuel consumption was somewhere near 27 miles per gallon of paraffin, which, considering that the car weighed over 32 cwt., is very satisfactory indeed. Another part of the test consisted in driving the car on top-gear over a distance of two miles at a speed not exceeding 6 m.p.h., which surely is a good sign that the use of paraffin does not adversely influence the flexibility of the motor. The ratio of gearing on the direct driven top-gear of this car is 3·7 to 1, which cannot, therefore, be considered under-geared, taking into consideration the size of the engine and the weight of the car. The rest of the track test was taken up in completing the total distance of 2,000 miles for which the car was entered.

Every morning during the duration of the test the engine was started on petrol, but was never allowed to run for more than two minutes on this fuel. The paraffin was then turned on and the car driven and restarted without having recourse to the lighter fuel for the rest of the day. The total quantity of petrol consumed in this way during the trial did not, we are told, amount to two gallons.

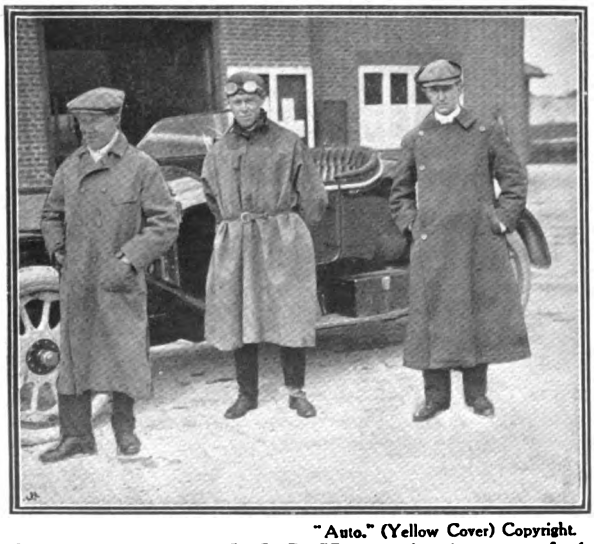


"Auto." (Yellow Cover) Copyright.

Piston-heads and spark-plug points after the trial. Note the R.A.C. seal on the box containing the plugs.

After the conclusion of the trial the engine was dismantled in order to ascertain the amount of carbon deposit. We reproduce a photograph which we took of the piston-heads after the cylinders were taken down, and the illustration shows better than words can describe the negligible amount of carbon. Piston No. 2 has been cleaned in order that our readers may be better able to judge for themselves. After the trial the four sparking-plugs were taken out of the cylinders and placed in a glass case, which was sealed by the R.A.C. observer; there was not a trace of soot or carbon on the points, and the plugs are to all intents and purposes as good and as clean as when new.

We shall take an early opportunity of giving our readers full technical details of the Stewart-Morris paraffin carburettor, which, it should be pointed out, is a British invention and London made.



"Auto." (Yellow Cover) Copyright.

Left to right: Messrs. C. C. B. Morris, the designer of the carburettor; Douglas Greig, who drove the car; and R. W. Sprague, the R.A.C. observer, after the successful conclusion of the trial.

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Imitation the Sincerest Form of Flattery.

THE Automobile Club of France has been taking a leaf out of the R.A.C. book, and their members are now able to enjoy a swim, and they can also spend a useful time in the fully equipped gymnasium adjoining the new swimming bath which has just been fitted up in the very fine A.C.F. Clubhouse in the Place de la Concorde, Paris. The swimming bath, as a thing of beauty, cannot, of course, compare with that at the R.A.C., but it is fitted up with every convenience, and is equipped with a diving platform, &c.

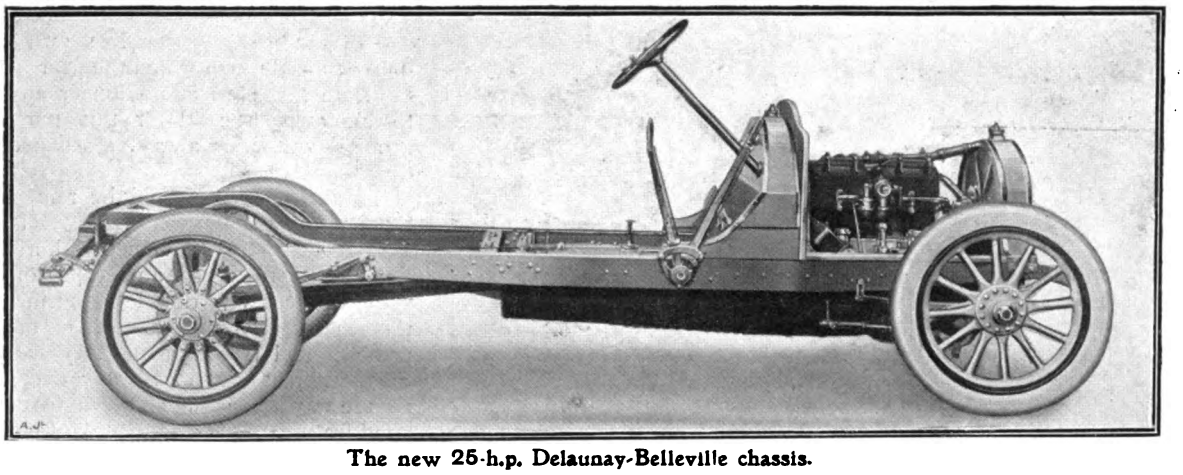
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For Accessories see Illustrated Directory weekly.

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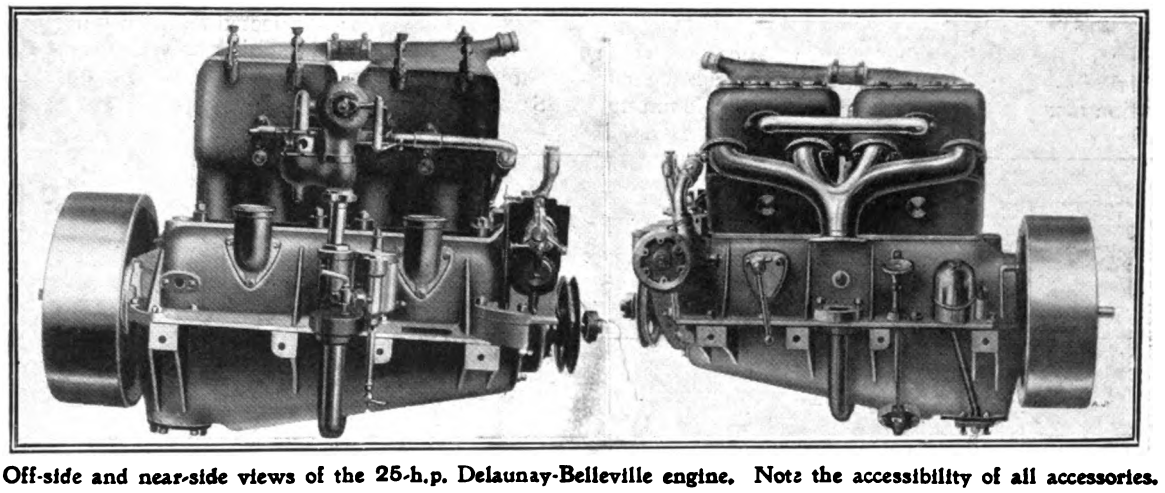
A NEW DELAUNAY-BELLEVILLE CHASSIS.

IT is always an event that merits the attention not only of the potential buyer, but also of the engineer, when a firm of the importance and reputation of Messrs. Delaunay-Belleville bring out a new type of chassis; for a new product of this firm may safely be relied upon to represent its novelties against a background of all that is best and most up-to-date in motor car design. But, as can be gathered from our illustrations, this chassis is of typical Delaunay-Belleville design, and by a casual observer might well be mistaken for its older sister, the 23-h.p. Nevertheless, when we look at it more closely we find that the men responsible for the design of this latest model have still found here and there room for improvement, so closely has every part of the well tried elder chassis been scrutinised with a view to possible refinement. A difficult task, doubtless, to improve something already so good, but all the more credit then to those who succeed.



The new 25-h.p. Delaunay-Belleville chassis.

¶ The chief difference in the new chassis is the fitting of an engine that yields a considerably higher output of power with an increase of only two millimetres of the bore in the cylinders. The engine is a splendid example of modern engineering practice; its four cylinders are cast into two pairs, their internal diameter is 100 mm., while the stroke of the piston is 140 mm. According to R.A.C. rating this engine should give off exactly 25-h.p., and as such comes into the 6-guinea class for taxation; we have, however, good reason to believe that the actual power output is considerably in excess of this rating and that the car will be able to maintain a good average speed over any kind of roads even when fitted with a heavy body. Owing to its rather large cubic capacity a half compression lever is provided; it is visible in the off-side view of the engine. Our illustrations also show clearly how all handles and taps on the engine have been brought above the level of the frame that supports the motor, so that they are readily accessible by simply lifting the bonnet. There is no occasion for having to go underneath for any purpose in connection with ordinary attention to the engine, not even for draining out the oil from the sump, or for cleaning the oil filter. Water cooling by pump circulation has been retained, but a different kind of radiator, entirely manufactured in the Delaunay-Belleville works, has been fitted. It consists of short tubes of a section somewhat resembling a Maltese cross, which are arranged in honeycomb fashion and which offer a considerably larger cooling surface than the old radiator of similar diameter.



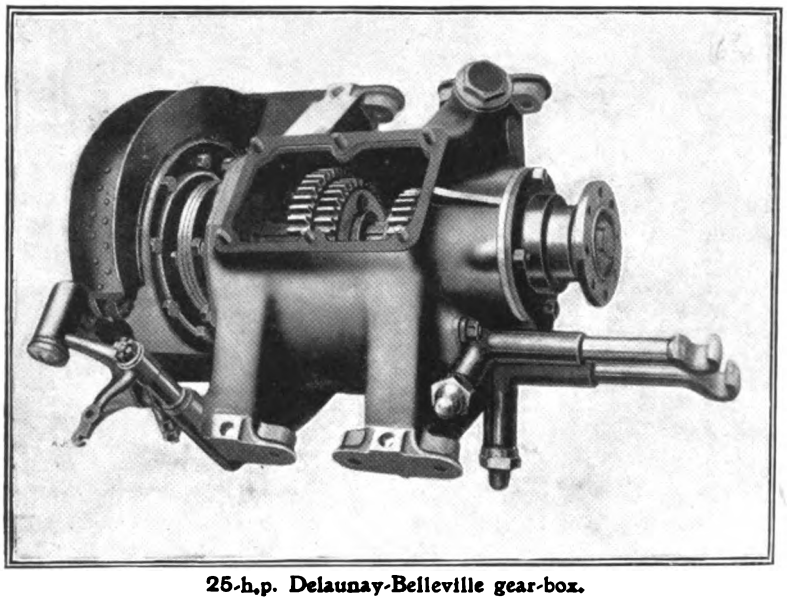
Off-side and near-side views of the 25-h.p. Delaunay-Belleville engine. Note the accessibility of all accessories.

Inclined valves of large diameter are fitted; they are enclosed by substantial cover plates and are quite silent in

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their action. The well-known Delaunay-Belleville carburettor, which is a combination of the spray and surface type, and an accessibly placed Bosch H.T. Magneto complete the equipment of the engine.

Lubrication, as a matter of course, is carried out by the now well-known and much copied Delaunay-Belleville system of feeding the oil to the bearings under pressure through the hollow shaft. It is as well to remember that Messrs. Delaunay-Belleville were the originators of this now so universally adopted principle, which they had employed with considerable success on their famous marine engines very nearly twenty years ago.



25-h.p. Delaunay-Belleville gear-box.

Little need be said on the subject of the transmission, which is carried out very much on the lines of the older types. Some improvements, however, are to be found in the gear-box, which aim chiefly at making it even more silent and absolutely oil tight. The box itself is an unsplit aluminium casting into which the shafts are introduced endways; they run on a double row of ball bearings, and are tightly packed to prevent any oil from escaping. Another improvement, which will be appreciated by the chauffeur, is the provision of a special screw plug, accessibly placed in the side of the box, and clearly shown in our illustration, through which the gears can be lubricated. There is no longer any need for removing the lid for this purpose, a proceeding that is always associated with dirty hands.

To this end it should be remembered that this new type, like all Delaunay-Belleville chassis, is designed with a view of being able to carry any type of body work, even a heavy double limousine. For this reason the frame, which is of the usual pressed steel type, is made very deep, and the reinforcements of its rear end, which by the way are patented, are a particularly good feature. It is also worthy of note that where the brackets that support the spring shackles are attached to the frame the latter is fitted with liners, which almost double its thickness at these particular places and more than make up for any weakening that may be caused by the drilling of the rivet holes.

Particular attention has been paid, as is usual in Delaunay-Belleville cars, to the suspension. A pair of very long and wide half-elliptic springs are used in front, while a similar pair, the rear ends of which are connected by a transverse spring, form the suspension of the rear axle. The price of the chassis with artillery wheels and 880 × 120 mm. tyres is £520, and at that figure it surely constitutes one of the finest examples of value for money that can be found on the market.

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Commercial Vehicle Show at Olympia.

AFTER considering the various dates at which Olympia will be available for the Commercial Vehicle Exhibition next year, the Commercial Vehicle Committee of the S.M.M.T. have selected the month of July. It is probable that the Exhibition will open on the third Saturday in the month, and will remain open until the Saturday following.



"Heloise," a 26-ft. 60-h.p. Wolseley hydroplane which was shipped out last year to Canada. She has just made a splendid record on behalf of British-built craft, having, at the Third International Regatta at Hamilton, Lake Ontario, secured the Two-Mile Race, the 26-ft. Unlimited Power Class, the 40-ft. Unlimited Class, the 32-ft. Unlimited Class, and finally the Gold Trophy for the Great Lakes Power Boat League Championship.

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RATING OF MOTOR CARS FOR TAXATION.
OFFICIAL REPORT.

IN view of its importance, both as a Government report and also as a valuable contribution to the literature on motor car rating, we reproduce, practically in full, the report, issued this week, of the Committee appointed by the Lords Commissioners of His Majesty's Treasury, to consider the rating of motor cars for taxation purposes. The following is the text and we deal elsewhere with this editorially:—

1. The Committee was appointed on 6th December, 1911, with the following reference:—

"To consider the Provisional Regulations which have been made under Section 86 (2) of the Finance (1909–10) Act for determining the horse-power of motor cars, and to report whether any amendments are desirable, with special reference to the equitable treatment of steam cars and electric cars."

2. The Committee have held nine meetings and have examined seventeen witnesses.

Definition of the Horse-power of a Motor Car.

3. The horse-power of any engine or motor depends entirely on the conditions under which it is measured, and these conditions must be specified, either expressly or by implication, in the statement of horse-power if that statement is to have any meaning. The necessity for arriving at clear ideas on this point before proceeding to discuss the rating of motor cars may be illustrated by some figures based upon tests made by the Secretary on behalf of the Committee. A certain car described by the makers as of 12–16-h.p. was capable of doing a maximum speed of 32 miles per hour on a good level track, and then the engine developed 19-h.p. This may be called the racing power. About the same, or possibly rather greater, power could be produced in the bench test of the engine at the maker's works, where it would be run for an hour or two under a constant load equal to, or near, the maximum which it could sustain for such a period. Driven on a road such as that from London to Brighton, under the restrictions on speed imposed by traffic conditions, this car could, in regular use, maintain an average speed of perhaps 22 miles per hour. The horse-power in such a run would, of course, vary at different times from nothing, when running downhill, up to the maximum of perhaps 20, obtained for short periods when accelerating or going uphill, but the average would be approximately that corresponding to 22 miles per hour on a level road, and would be about 9 h.p. This may be called the touring horse-power, and corresponds to a speed determined mainly by traffic restrictions. If these were removed, the average speed would be limited by the requirements that the engine must not be worked so hard as to cause it to break-down or to wear out unduly fast, and that the occupants must not suffer discomfort from vibration. These requirements would in general fix it at a figure higher than the touring speed, but considerably less than the racing speed, and there would be a corresponding value of the horse-power.

It will be seen that there are at least three different meanings which may be attached to the horse-power of a car, the values ranging in the particular case considered from 9 to 20, and any one of these might be defended on various grounds as a possible basis of rating. In selecting from among them that most suitable for taxation purposes, the Committee had in mind that the conditions under which the horse-power is determined should be, if not those actually obtaining in use on the road, at least closely related to them. This consideration excludes the racing or maximum horse-power, which is determined under quite abnormal conditions. The actual power developed on the road in ordinary use would seem, from some points of view, the best basis to adopt. But, as already pointed out, this is dependent not only on the car but also on such extraneous matters as traffic conditions. In fact, several witnesses of wide experience agreed that the average touring speeds of modern petrol cars of different sizes were nearly the same. A car with a relatively large engine goes quicker uphill and picks up speed quicker, and, mainly for this reason, gets rather higher average speed, but not nearly in proportion to the size of engine however it be computed. If the actual performance on the road were adopted as the basis, then, the average speeds being equal, the horse-powers of cars would be nearly proportional to their weights and independent of the engines. This, however, is not using horse-power in its natural meaning, which must refer in some way to the capacity of the engine for doing work, and this capacity must be determined under conditions which permit the full power to be developed. On this ground it appeared to the Committee that the third basis of rating should be taken, namely, the average power which the engine in a car could develop in regular use on the roads, if there were no restrictions on speed other than those imposed by the car itself.

In order to give greater precision to this conception of horse-power, on which the recommendations of the Committee are ultimately based, it may be well to show how it would be realised in practice. Suppose that it is desired to establish a service of motor cars to run regularly to schedule times over a private road from London to Brighton. The average horse-power required to maintain such a service with cars of given weight could be exactly determined, and the promoters would fit the cars with engines just large enough to develop the required power without breaking down, and without causing inconvenience to the passenger by vibration, and at reasonable cost for repairs and depreciation. The average power actually developed in service would then be the horse-power of the cars. And the horse-power of any other car would be that corresponding to the average speed which it could maintain if put to do the same work.

It is obvious that this conception of horse-power is numerically indefinite, because it depends on the standards of continuity of service, cost of depreciation and repairs, &c., which are adopted. One man may be less particular than another in these respects, and be content with engines which are smaller and cheaper, but (being run at a higher speed) less reliable and durable than those considered necessary by his fellow; but the two lots of engines would be rated at the same horse-power by their respective owners. Thus no absolute measure of horse-power is possible on this, or indeed any other, basis. But by making the standards adopted the same for all a scale can be framed which will be relatively correct as between one car and another. This is all that is required for the purpose of taxation, and the committee wish to emphasise the fact that the system of rating which they recommend has a relative and not an absolute significance.

Rating Formulæ.

4. The Committee then proceeded to consider the expression of the horse-power of a car, as defined by them, in a rating formula. In framing the recommendations which follow, as to the manner in which the horse-power should be ascertained for purposes of taxation, the Committee have been guided by the consideration that the expression used should be of a simple character and should involve only quantities which are easily measured. This requires that the rating shall depend upon the dimensions of the engine alone, other variables such as workmanship, materials, &c. (all of which are factors in the horse-power), being treated as constant, though in fact they may vary very widely, and give rise to corersponding variations in the horse-power. The rating formula can, therefore, only give a rough-and-ready approximation to the horse-power of the average car having an engine of particular dimensions, and may differ much from the actual horse-power of an individual car of these dimensions. Moreover, even when taken as representing an average, the formula cannot be taken as expressing the absolute horse-power of a car. It expresses rather the relative horse-powers of cars of different sizes.

The Committee have thought it well to deal at some length with the principles which have guided them in their inquiry, but it does not seem necessary to treat in equal detail the purely technical questions arising in the application of these principles to different types of cars. They will therefore simply state their opinion as to the most suitable method of expressing the horse-power in each case, with a brief indication of their reasons.

Petrol Motors.

5. The Committee are asked in their reference to deal especially with steam and electric cars, but, inasmuch as more than 90 per cent. of the motor cars in this country are driven by petrol motors, it will be best to deal with that type of engine first. In the petrol motor the factors in the rating formula which, as already indicated, can take account only of easily-ascertained dimensions, must be the area of the pistons and the length of the stroke; according to the present method of rating these motors, the stroke is ignored, and the horse-power is taken as proportional to the piston area. That is to say, two engines having the same diameter of cylinder, but in one of which the stroke is double that of the other, are treated as having the same power, the assumption being that the long-stroke engine must in ordinary use be run, on the average, at half the number of revolutions per minute made by the short-stroke engine, so that the speed in feet per minute at which the pistons move in the two cases is the same. This assumption is in accord with the mechanical principle that the stresses in the working parts, and therefore the wear and tear, in a reciprocating engine depend primarily on the piston speed. This principle is reflected in the general practice of engineers, which is to regard the piston speed (as distinct from the number of revolutions per minute) as one of the

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things which must be limited in an engine if satisfactory running is to be secured.

There is no doubt, however, that the neglect of stroke length in rating an engine for horse-power, while it gives a rough approximation, does in fact tend to underrate the power of long-stroke engines. That is to say, in the case cited above, the long-stroke engine would be capable of being run in regular use at a higher piston speed, though still at a less number of revolutions per minute than the short-stroke engine. The effect of this factor in horse-power has been much discussed in recent years by the various societies and institutions concerned with the manufacture or use of motor cars. There seems to be a wide difference of opinion as to its amount. According to one formula, put forward by the Institution of Automobile Engineers in February, 1911, and based upon an examination of a large number of makers' tests of engines then on the market, the power of an engine in which the stroke and bore are equal should be 33 per cent. less than that of an engine of similar bore in which the ratio of stroke to bore is 2·1. This covers the extremes of existing practice. The tests upon which this formula was based were, as already stated, bench tests, and the formula therefore refers rather to the maximum or racing horse-power than to the horse-power as defined by the Committee, and several witnesses of wide experience were of opinion that the difference between long and short-stroke engines in ordinary use on the roads (in which wear and tear and vibration are of primary importance) would not be so great as is indicated by this formula. The Committee, after giving careful consideration to the matter, have come to the conclusion that, while strictly a rating formula should take account of stroke, the influence of this factor is not large enough in estimating the horse-power of a car to justify the complication which its introduction involves, and further, that it is impossible to express it quantitatively in a way that will command general acceptance.

With regard to petrol motors then the Committee are of opinion that for the purpose of rating for taxation the horse-power of engines of the ordinary single-acting four-stroke type shall be taken as being simply proportional to the combined areas of the pistons.

If the rating formula is to represent actual and not merely relative horse-power, it is necessary to multiply the piston area by some constant. It has already been stated that in the opinion of the Committee no absolute measure of horse-power is possible, and it would seem more logical to drop the constant altogether and simply to impose a tax depending on the piston area. But people have grown accustomed to speak of the rating in terms of horse-power, and there is, in the opinion of the Committee, no reason why the present constant should not be retained for this purpose. The result gives roughly the horse-power of petrol engines as defined by the Committee. It is certainly less than the racing or maximum horse-power and less than the horse-power sometimes developed for short periods in ordinary use. On the other hand, it is greater than the average horse-power in fact developed on an ordinary tour in which the speed is restricted by considerations of safety, comfort, and the requirements of other traffic. As illustrating this point, it may be stated that the car referred to above, which was tested by the Secretary, was rated at 15·5 according to the system now in force. It will be remembered that the maximum or racing horse-power of this car was about 19, and the average road-power when running at 22 miles per hour about 9.

Most cars are driven by four-stroke engines, in which there is a working stroke in every alternate revolution only. There are, however, a few cars in use which are driven by two-stroke engines, giving a working stroke in every revolution. At first sight it would appear that such engines should be rated at twice the power of four-stroke engines having the same total piston area. The Committee, however, after taking evidence on the matter, have come to the conclusion that the pressure developed in these engines, under the conditions obtaining on a car, is not much more than half that obtainable in the four-stroke type. The impulses, though twice as numerous, are only about half as powerful, and in the result substantially the same power is obtained from the same piston area. The present regulation therefore, which does not recognise any difference between two-stroke and four-stroke motors, is not very far wrong. It probably favours the former type, but not so much as to call for any alteration.

The recommendation of the Committee is therefore to retain in respect of petrol engines the system of rating now in force, and expressed in No. 2. (*a*) of the Provisional Treasury Regulations. The Committee believe that the majority of those interested in the manufacture and use of motor cars are in favour of this course, not only because the method of rating is substantially fair as between one car and another, but also because any change of system would lead to a good deal of inconvenience to persons who have made arrangements for manufacturing, or dealing in, cars in classes suggested by the present system.

Old Cars.

6. Several witnesses representing the users of motor cars expressed the opinion that the horse-power of cars made a number of years ago was considerably less than that of modern cars of the same rating. The Committee have also had communications from owners of such cars who consider that the tax which they have to pay is too high and out of proportion to the horse-power. It has even been suggested that in some cases cars are laid up which, but for the tax, would be brought into service.

The chief cause of the grievance which is undoubtedly felt by many owners of old cars is the ordinary process of depreciation, which is operative in all classes of machinery. As cars get older their value rapidly gets less, partly because they become less efficient and cost more to maintain, and partly because fashions change. A car may be as serviceable and economical as when first made, and yet command less than half its original price. Under such circumstances a tax of fixed amount acquires a relatively greater importance in the eyes of the owner. If in consequence of wear and tear the running costs are also increased, it may become a question whether it is worth while to keep the car in service at all.

The Committee, while they have thought it proper to draw attention to this point, have not considered it within their province to make any recommendation as to the taxation of cars which have depreciated in value in the ordinary way.

The only question with regard to this matter which appears to come within their reference is whether the rating formula fairly represents the power which such cars could have developed when new. On this point it is impossible to pronounce any very definite opinion. There is no doubt that in many instances the power of cars five years old or more is now much below the rating; but how far this is due to wear, and how far to the improvements in design, and in particular to the lengthening of the stroke, which have been effected since they were made, it is impossible to say. That some part of the change is to be ascribed to the latter causes can hardly be doubted, but the Committee have come to the conclusion that it cannot be expressed quantitatively. They have decided, therefore, to make no proposals in regard to this matter, as they feel that any reduction of tax is more a question for the Treasury than for themselves.

Steam Cars.

7. The essential difference between a steam engine and a petrol engine is that whereas in the latter the power depends upon the engine alone, in the former the primary source of power is the boiler. The boiler is capable of supplying steam at a certain average rate, and in the long run the engine can only develop power at a corresponding rate. By drawing on the reserves of steam in the boiler it may produce for short periods an amount of power greatly exceeding the average, but, unless the boiler is a very large one, such periods of over-load will result in a drop of pressure, and must be set off by periods of comparatively light load, during which the boiler can make up the pressure again.

In a steam car, as in other cars, the engine is only occasionally called upon to develop its full power, and the average is much less than the maximum. These short spurts at high pressure can be provided for by a comparatively small boiler—a boiler quite incapable of producing steam at that rate continuously. The maximum power available for short periods—say, in ascending a hill—is determined largely by the size of the engine. But the average power on a long run depends solely on the boiler. The power of a steam car ought to be taken as proportional to the capacity of the boiler for evaporating water, and this depends upon the heating surface, and on the rate at which the burner can consume fuel. The ideal rating formula for steam cars would be based simply on these quantities, and would be independent of engine dimensions.

According to the Provisional Regulations which are now in force, the horse-power of a steam engine in a car is taken as equal to that of a petrol engine having equal cylinder area. Where the engine is double-acting the rating is correspondingly increased in the manner provided in Regulation 2 (c). Since the real horse-power is practically independent of the engine dimensions, but depends only on the boiler, it is purely a matter of chance whether it is correctly represented by this rule. As a matter of fact, in a number of cases examined by the Committee, the present rating happens to give a fair approximation. But in one or two cases it is seriously wrong, and it would seem desirable to put the rating of steam cars on a rational basis. As already indicated, this basis must be the evaporative capacity of the boiler, and the problem of rating a steam car is that of finding a simple expression for this capacity in terms of the dimensions of the boiler.

The capacity of a boiler depends upon the heating surface exposed to the flame and on the arrangements for burning fuel. With equally efficient burners the capacities of different boilers will be in proportion to their effective heating surfaces, and it is not, in the opinion of the Committee, practicable to take account in rating of

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the nature or size of the burner. The horse-power rating of a steam car must therefore be taken as proportional to the effective heating surface of the boiler. This is not difficult to ascertain in the boilers of the types now used in motor cars. All that is necessary is to get from the maker a statement of the diameter and total length of the tubes. In horizontal tube boilers the whole of this surface may be taken as effective. In vertical tube boilers, of which there is at least one example on the market, a portion of the tube surface is not fully effective, and in such cases it would be reasonable to take the effective surface as half the total. It seems impossible to devise a formula which shall provide for future developments, but the Committee would recommend that *prima facie* the whole heating surface be taken as effective unless the maker of the car can show good grounds, such as that already indicated in the case of the vertical boiler, for taking a portion of it as ineffective.

In order to bring steam cars into their proper relation for rating purposes with those driven by petrol engines it is necessary to decide how much effective heating surface in the boiler is to be regarded as equivalent to one unit of piston area in the internal combustion engine. The Committee consider that 3 square feet of heating surface should be taken as equivalent to the 2 square inches of piston area or thereabouts, which under the Provisional Regulations is regarded as giving 1-h.p. in a petrol engine. This rule, bearing in mind that in a vertical tube boiler only half the heating surface is to be considered effective, will, when applied to the various steam cars now on the market, give horse-power values corresponding sufficiently nearly with the definition of horse-power adopted by the Committee.

Electric Cars.

8. The primary source of power in the electric car is the storage battery, which is to some extent analogous with the boiler of a steam car, the electric motor corresponding to the engine. There is, however, the important difference that whereas the output of the boiler is strictly limited by the heating surface and burner capacity so that it really determines the power of the car, the possible output of electric current from the storage battery is always much in excess of the rate at which the motor can safely transform it into mechanical work. By putting in a larger battery the car can be made to go longer without re-charging, but whether the battery be large or small it is possible for it to produce current without serious damage to itself at such a rate as will burn out the motor. Hence in the electric car the power is limited by the motor.

The horse-power of an electric motor can be determined experimentally with some precision. When the motor is working continuously under a constant load, its temperature rises by a definite amount which depends on and increases with the load. The horse-power is the maximum load corresponding to a safe working temperature. The permissible temperature is the highest consistent with durability and freedom from breakdown; and when this has been fixed the rating of any electric motor is definitely settled. While manufacturers naturally differ to some extent as to the basis of temperature on which they rate their motors, there is fair agreement among the best of them.

For the purpose of taxation the rating of the electric motors in cars might be fixed by reference to temperature, the limit of temperature being chosen so as to be in accordance with the average practice of manufacturers. Actually to test the motor in order to ascertain its horse-power on this basis is of course inadmissible, and recourse must be had to some formula, based on the dimensions, which shall give, on the average, the same result as the test. It would not be difficult to devise a formula of this kind, at least as accurate as that employed for petrol motors, which would express the horse-power of electric motors.

The number of electric motor cars is, however, small; they are all employed in one kind of service, namely, for town work, and they are all of much the same type and size. The powers of all lie within limits which are not very widely separated. The simplest method of rating these vehicles for taxation is, in the opinion of the Committee, to specify these limits, rather than to set up a formula. Unless the limits happen to fall in different taxation classes, the practical result of this course will be the same as that given by the formula.

This is the basis of the present regulation defining the horse-power of electric cars, and the Committee recommend that in future the same principle be followed. But they are of opinion that the specified limits, which are at present 12-h.p. and 15-h.p. respectively, should be altered. Most of these vehicles are fitted with motors rated by the makers at 8-h.p. There is no reason to suppose that the motors are underrated by the makers, and tests made by the Secretary on behalf of the Committee on one of these cars showed that at 20 miles per hour—which is probably the maximum speed which it could maintain in regular use on unobstructed roads—it took about 7½-h.p. So far as the Committee can ascertain there is no electric car in use having motors of greater power than those used in this type. They are of opinion that all these cars can be described with sufficient accuracy as exceeding 6½ but not exceeding 12-h.p., and they recommend that the regulation dealing with them be amended accordingly. In the event of cars of new types and of greater power being introduced at any time, it would be necessary to reconsider the rating of electric cars and perhaps to devise a formula for expressing their horse-power, but this contingency seems to be so remote that it is not necessary to provide for it now.

Motor Cycles.

9. Motor cycles have not been defined in an Act of Parliament, but are always taken to be mechanically propelled carriages having not more than three wheels and weighing, unladen, not more than 3 cwt. Under the Finance Act these vehicles are all taxed at a uniform rate of £1 irrespective of horse-power; and they do not come within the Provisional Regulations with which the Committee have to deal. Some motor cycles, however, have engines whose power under any system of rating must be reckoned equal to that of the smaller classes of motor cars; on the other hand, the Committee are informed that a class of very light vehicles is coming into existence which are designed on the lines of motor cycles and have small engines, but have four wheels. These "cycle cars" pay a two-guinea tax against £1 paid by a motor cycle fitted with an engine of equal or greater power, and this solely because they have four wheels instead of two or three.

Though this subject is perhaps strictly outside their reference, the Committee have thought it well to draw attention to the facts, and to suggest that the present anomaly in the relative amount of the tax paid by certain motor cycles and by certain motor cars might be removed by an alteration in the system of classification adopted in the Finance Act, 1909–10. In the opinion of the Committee it would be more rational to discontinue the separate treatment of motor cycles, to classify them as motor cars, and to rate them for horse-power as such. They suggest that if this be done the Schedule of Rates of Duties should be amended by the addition of a class of cars not exceeding 5-h.p. and paying £1, so that it would read as follows:—

Motor cars—	£	s.	d.
Not exceeding 5-h.p.	1	0	0
Exceeding 5 but not exceeding 6½-h.p. ...	2	2	0
Exceeding 6½ but not exceeding 12-h.p. ...	3	3	0

&c., the remainder being the same. This would have the effect of keeping the tax on the great majority of motor cycles and of motor cars at the present level, but would put on a fairer basis both the high-powered motor cycles and the light low-powered "cycle cars."

Summary of Recommendations.

10. The recommendations of the Committee are most conveniently summarised in the form of the following amended Regulations for the determination of horse-power, which might, in the opinion of the Committee, take the place of the Provisional Regulations now in force—

1. For the purposes of these regulations the horse-power of any motor car deriving its motive power wholly from an internal combustion engine worked by a cylinder or cylinders shall be taken to be:—

a. in the case of a single-cylinder engine the horse-power attributable to the cylinder of the engine;

b. In the case of an engine having two or more cylinders the sum of the horse-powers attributable to the separate cylinders.

2. The horse-power attributable to any cylinder of an internal combustion engine shall be deemed to be equal to the square of the internal diameter of such cylinder measured in inches divided by a numeral.

a. In the case of a single-acting cylinder having a single piston, the numeral used as divisor shall be 2·5.

b. In the case of a single-acting cylinder having two pistons, the numeral used as divisor shall be 1·6.

3. The horse-power of any motor car deriving its power wholly from a steam engine shall be taken to be proportional to the effective heating surface of the boiler supplying steam to such engine, at the rate of 1-h.p. for every 3 sq. ft. in such effective heating surface, and the effective heating surface shall be taken to be:—

a. In the case of a boiler having horizontal or approximately horizontal tubes, the whole of that surface of the tubes which is exposed to the flame or hot gases;

b. In the case of a boiler having vertical or approximately vertical tubes, half of that surface of the tubes which is exposed to the flame or hot gases.

4. Any motor car deriving its motive power from an electric motor or motors shall be deemed to be of a horse-power exceeding 6½ but not exceeding 12.

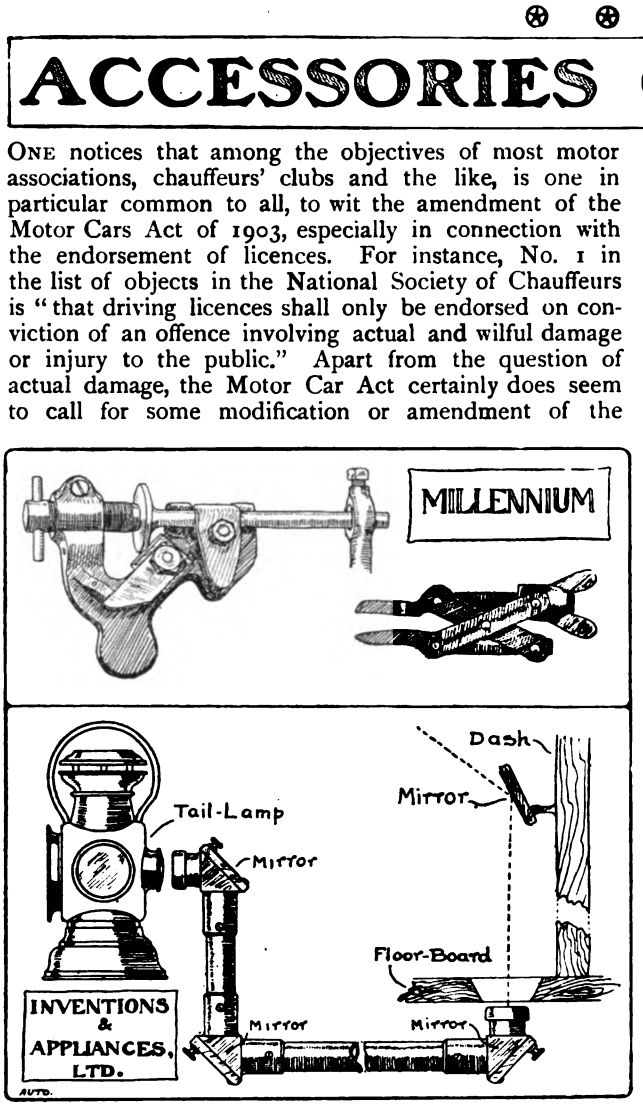
5. In measuring cylinders and boilers, and in calculating horse-

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power, fractions of inches and feet and fractions of a unit of horse-power are to be taken into account.

6. Where it appears that in consequence of the exceptional design or construction of the engine of any motor car the horse-power as calculated under the preceding rules is substantially less than the average power which the engine would develop in continuous use on the road if there were no restrictions on speed other than those imposed by the car itself, then such average power shall be taken as the power of the car.

The Committee also suggest that motor cycles be taxed according to horse-power, and that the horse-power be determined as in the case of motor cars, a new class comprising cars of less than 5-h.p. being added to the Schedule of Rates of Taxation in the Finance Act, 1900-10.



ACCESSORIES OF THE WEEK.

ONE notices that among the objectives of most motor associations, chauffeurs' clubs and the like, is one in particular common to all, to wit the amendment of the Motor Cars Act of 1903, especially in connection with the endorsement of licences. For instance, No. 1 in the list of objects in the National Society of Chauffeurs is "that driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public." Apart from the question of actual damage, the Motor Car Act certainly does seem to call for some modification or amendment of the proviso inflicting the penalty of endorsement of licence of a driver committed for driving without having his rear lamp illuminated during lighting up time. Any alterations of this nature, however, seem still to be far off, so in the meantime we must take the best possible care that our tail lamps either don't go out or that should they do so, they are relighted immediately. Nearly all electric lighting sets have some kind or other of tell-tale in front of or near the driver. Oil lamps on the contrary have, even by the most cautious, only been fitted with a window on the offside through which a beam of light is thrown on the road where it may or may not be seen by the driver. In any case it is mighty difficult to tell whether the tail lamp is illuminated or not when passing through a town or even in the country where street lamps are frequent. Illustrated on this page will be found a tail lamp indicator manufactured and marketed by Inventions and Appliances, Ltd., of Milburn House, Newcastle-on-Tyne. It is the invention of Mr. A. W. Brewtnall, and constructionally and otherwise is a decided advance on anything of the sort that has been produced before. The principle can easily be gathered from the sketch, and is in itself neither wonderful nor original. The difficulties encountered in making an indicator of this sort are threefold—the construction must be sufficiently solid to ensure that the mirrors do not get out of alignment; a perfect surface must be obtained inside the tubes, which surface must retain its smooth blackness indefinitely; and, lastly, the mirrors, while being so fitted that no dust can enter at the joints, must be easily removable for cleaning purposes. All these difficulties seem to have been successfully overcome in the article illustrated.

THE two other illustrations depict a couple of neat little accessories made by Messrs. Lake and Elliott, of Braintree, Essex, and sold in London by their agents, Messrs. Smith and Dorey, of 14A, Great Marlborough Street, W. That shown on the left is the "Millennium Universal" valve truer, which is provided with a cutter of high speed steel having four cutting edges. It has a large range of action, so that valve heads of 1 in. to 2½ in. can be handled with ease. By means of the feeding adjustment on the left, which has a very fine thread, exceedingly light cuts can be taken. Supplied with the tool is a handle or grip for rotating the valve. The retail price is seven and sixpence. On the right is shown the "Millennium Parallel" valve spring lifter, designed to avoid bending the valve stems, the principle of which is made so clear in the sketch that no description is necessary. Suffice to say that steel stampings are used for making this tool and that the lower jaw is specially designed to be inserted easily between the end of the valve and the tappet. Four and ninepence is the retail price of this tool.

Canada's Imports of Motor Cars.

IN a recent issue we recorded that of the 21,727 cars exported from the United States during the fiscal year ending June last, over 25 per cent., or to be exact 6,288 cars, were sent to Canada. The following table, compiled from some recent Canadian Government reports, shows in an extraordinary way how the American industry has captured the Canadian market. While the value of British exports to Canada have during four years improved by 68·7 per cent., the U.S. exports have increased by 431·6 per cent.

Year.	Imported from U.K. No.	Total Value. $	Average Value. $	Imported from U.S.A. No.	Total Value. $	Average Value. $
1908...	101	186,224	1,843	563	714,497	1,269
1909...	48	79,954	1,663	469	480,785	1,026
1910 ..	78	114,871	1,472	1,345	1,644,431	1,223
1911...	240	314,182	1,309	3,207	3,798,589	1,887

A fair number of French cars are sold in the Dominion, and the German firms are making a bold bid to capture some of the trade.

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MOTORING IN SOUTH AFRICA.

FROM HIGH VELDT TO COAST.

POPULARITY OF LONG TOURS.

From Our Own Correspondent.

Johannesburg, August 26th.

MOTORING throughout South Africa is receiving something of a fillip at present, and the predictions of Mr. S. F. Edge and Mr. C. Jarrott, which appeared in AUTO., arrived at after personal experience of the petrol potentialities of this much misunderstood country, that it offered attractions and charms to the motoring tourist that scarce could be equalled elsewhere, are already convincing the people here, and now long-distance tours are a prominent feature in the engagements of all progressive motorists. And so it should be, as a venture afield in the sub-continent offers interests that could not be found elsewhere. From a historic point of view this country has a wealth of incident unparalleled of recent years; its climate at certain seasons is incomparable; its scenic effects, particularly on the coast belts, are wonderful testimony to nature's majesty and grandeur; and—to come to the mundane—its roads are, as the above-mentioned motorists have experienced, nothing in the nature of the impassable, as uninformed opinion seems to associate with them. The Government of the Union have now been released from the consideration of many of the more serious questions affecting Parliamentary responsibility, and through their useful department—the Public Works—are putting the main turnpikes into order. A good example of this may be seen from the fact that the trip from the Rand to Durban, which at one time was regarded as a terror-some undertaking, is now a daily occurrence.

Only this week several members of the committee of the Transvaal Automobile Club, including Mr. J. D. Ellis, the Mayor of Johannesburg, Mr. Izod, of the Corner House (the great Hermann-Ekstein group), F. H. Davis, a former president of the Club, L. H. Lavenstein, of the Lewis and Marks Corporation, and Mr. C. E. H. Williams, took their cars over this route, and at the time of writing I have received the following wire from the Mayor:—"Durban, August 26th.—All cars had non-stop run. No mistake in road."

The Mayor of Johannesburg, I am further informed, did the trip with his 12-h.p. Talbot, a distance of 412 miles, without an involuntary stop, and used only 15 gallons of petrol. Although no official intimation has been made as to the object of the visit to the Natal coast, apart from proving that the journey is an easily practicable one, I am in a position to state that these members of the Transvaal committee are, with members of the Natal motoring organisations, meeting the administrators of the two provinces with a view to submitting a scheme and allocating expense in connection with the laying down and maintaining of a thoroughly good road from the high veldt to the coast and marking it off with indication boards and making other arrangements for convenience and comfort of touring motorists.

Extended tours in other parts of the country—particularly in the game districts—have further proved the advantages of the motor car, and I have no doubt that next year will see this considerably increased.

The committee of the Transvaal Club have repented of their decision to withhold from publication the particulars of the recent competition—a petrol consumption one—for the Park Trophy, which took place from Johannesburg to Potchefstroom and back, reckoned as a distance of 86 miles either way. From details now available it appears that Mr. P. Lang, with a Sunbeam car, takes premier place, while the second and third places are occupied by Talbots. The competition was a highly successful one, and showed the progress in advantage and efficiency of cars for colonial use that has been made during the last year or two, as non-stop runs were in the majority as compared with not so long ago when a non-stop run was an outstanding achievement. The winning car, rated at 19·2-h.p., used 3¼ gallons of petrol for the double trip. Mr. J. W. Ellis, in his Talbot, was one-sixteenth of a gallon less and had the smallest petrol consumption of any of the four-seated class, but, of course, lost in weight carrying capacity. In the American class, the Buick came out best on points, with a Mitchell second. This specialised class has been introduced as it is recognised that American cars, with high speed and light weight, would not stand a fair chance with their English and Continental rivals.

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A Relief Road for Croydon.

SPECIAL efforts are being made by the Roads Improvement Association to secure the adoption by the Croydon Corporation of a scheme for the construction of a new road between Thornton Heath and Purley in order to relieve High Street, Croydon, of the London to Brighton traffic. A detailed scheme has been prepared, and this is to be considered by the Corporation on Monday next. At this meeting a strong deputation from the R.I.A. will support the scheme, which will entail an expenditure of £55,493. The Road Board has promised a grant of £30,000, and grants promised from other sources amount to £5,750; the net cost to the Corporation will therefore be £19,743. It is estimated that the annual charge for the Sinking Fund and interest to cover this sum will be, approximately, £1,600, and the annual cost of the maintenance of the road and lighting thereof will be about £1,100.



A BRITISH CAR AND A BRITISH ARCH.—A Daimler car in Valparaiso. The arch in the background was presented to the City by the English colony in celebration of the centenary (September 18th, 1910) of the Declaration of Chilian Independence.

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Notes from New York



THAT the question of allowing motor vehicles in U.S. National Parks is at any rate receiving official consideration is shown by the fact that it is one of the subjects down for discussion at the Annual Conference of Park Superintendents, to be held in the Yosemite National Park early in October. Not only so, but the Secretary of the Interior has invited representatives of the motoring organisations to be present and give their views. Hitherto all requests for permission to take cars into the parks have been refused on the plea that it would be dangerous to the traffic.

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Local lawmakers in Wisconsin have received a set back in an important decision just given by the Attorney-General of the State to the effect that no city, village, county, or other form of local government can make laws or ordinances which conflict with the State law regarding motor cars. According to the State law, the speed limits are 15 m.p.h. in cities and 25 m.p.h. in the open country, but several cities have made their limits of 10 and 12 m.p.h., and Milwaukee county has fixed a general speed limit of 20 m.p.h., while La Crosse has a bye-law specifying 6 m.p.h. as the limit at street crossings. The Attorney-General says that local requirements are sufficiently taken care of by the provision in the State law requiring every driver to proceed at a speed which is reasonable and safe at all times. Several of the local authorities threaten to contest the decision and to carry it to the highest courts.

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Some form of starting gear is included in the standard specifications of nearly all the new models of the leading firms, and present indications go to show that the electric type working in connection with the lighting and ignition systems is most in favour. The vogue of the gas starter has considerably declined, and several firms which were fitting appliances of this type have now changed over to the electric system.

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Business in secondhand cars being rather slack, a Minneapolis dealer conceived the idea of entering one of the cars on his hands in the annual reliability run to Winnipeg. A three-year old Cadillac was selected, and went through the trial without penalisation for mechanical trouble—a fact which, it is expected, will help to boost sales in used cars.

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A well-known American aviator—J. Clifford Turpin—has decided to give up flying, and has accepted a position with the Bartholomew Co. to look after the sales of Glide cars in the West.

• • •

New Orleans now has two special detectives who devote their attention exclusively to motor cars. They will watch for joy riding chauffeurs and car thieves, and endeavour to see that taxi-cab drivers do not overcharge, while drivers with a reputation for exceeding the speed limit will be kept under surveillance until the law breaking is stopped.

With a view to increasing the efficiency of its sales organisation one of the largest firms in the States has introduced a new scheme whereby the managers of their various branches are to spend a certain time at branches other than their own. They will thus get an insight into the working of all the branches, and will be able to receive and to give many good hints.

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A system of travelling inspectors, somewhat similar to that introduced by the Rolls-Royce firm in Great Britain, has been inaugurated by the American Locomotive Co. The inspectors, who are all picked men from the factory, will pay periodical visits to owners of Alco cars, whether of the pleasure or commercial variety, in order to see that the vehicles are being run to the best advantage.

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An Indianapolis firm being pressed for room owing to the delay in the completion of some extensions to its factory, has been making use of a great tent 80 feet in diameter, which formerly belonged to the famous Barnum and Bailey Show, as an emergency shop for cars which are awaiting shipment.

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Some remarkable figures regarding the use of commercial motor vehicles in the States have been published by the National Association of Automobile Manufacturers. It appears that an aggregate of nearly 30,000 motor vehicles are in use in the 49 States, New York leading with very nearly a quarter of the total. Below are given the figures for commercial motor vehicles in use in 1912 for the twelve States which stand at the head of the list, together with the population as shown in the Census Report for 1910:—

State.	Nos.	Population 1910.	State.	Nos.	Population 1910.
New York ...	7,892	9,113,000	Michigan ...	1,146	2,810,000
Pennsylvania	2,664	7,665,000	New Jersey	1,080	2,537,000
Illinois ...	2,551	5,638,000	Indiana ...	970	2,700,000
California ...	2,198	2,377,000	Minnesota...	970	2,076,000
Massachusetts	2,045	3,366,000	Missouri ...	832	3,293,000
Ohio ...	1,171	4,767,000	Iowa ...	730	2,225,000

The figures relating to the vehicles in use were compiled from three principal sources of information—production as reported directly by manufacturers to March 1st, 1912, State and City Registrations for motor vehicles, and reports of trucks in use in the principal cities by reliable observers.

• • •

Although the entries were not very numerous the races at Elgin, near Chicago, on August 31st, were very successful. Ralph de Palma, on a Mercedes won the Elgin National Trophy and also the "free for all" race, his average speed over the full course of 305 miles being 70 m.p.h. Bergdoll, on a Benz, was second at 67·5 m.p.h., and Ralph Mulford on a Knox third at 66·6 m.p.h. Of the three minor races that for cars up to 230 cubic inches displacement was won by Endicott on a Mason special, that for cars up to 300 cubic inches displacement by Hughes on a Mercer, and that for cars up to 450 inches displacement by Merz on a Stutz.

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THE CHEAP AMERICAN CAR AND BRITISH MAKERS.

AT the invitation of Mr. R. D. Blumenfeld, the Editor of the *Daily Express*, a number of representative members of the motor trade gathered at lunch together at the Ritz Hotel on Tuesday, the question of the importation into this country of American cars being the reason of the gathering. Amongst those who were present were Lord Montagu of Beaulieu, Mr. S. F. Edge, Mr. W. M. Letts, Mr. Charles Jarrott, Mr. J. S. Matthew, Mr. J. Adams, Mr. Frank Shorland, Mr. J. Thornycroft, Mr. A. L. Stampa, Mr. Sydney Straker, Mr. Frank Lanchester, Mr. L. Walton, Mr. E. Leslie, Mr. Holt Thomas, Mr. Robert W. A. Brewer, Mr. R. A. Rackham Bullard, Mr. A. Selwyn Hayward, Mr. C. B. Wardman, &c.

Mr. Blumenfeld referred shortly to the object of the meeting, and invited opinions from those present.

Mr. S. F. Edge was very emphatic in regard to it not being good for our motor cars to be built abroad, as he saw no reason why otherwise the same argument should not apply to our ships and all other great industrial undertakings. He quite understood that to meet the quantity competition of the cheap American car meant new factories and immense capital, but he maintained that there were already many British firms making in lesser quantities a car far superior and as cheap as the American importation. The difficulty which stood in the way of British firms launching out was the absolute insecurity of tenure which existed under the present Government. He maintained that at any moment by reason of this open door manufacturers were in a tremendous danger. The surplus goods from other countries could be thrown on our shores and thereby entirely undermine the industry. With proper protection there should be no difficulty in meeting every demand in this country. His experience was that wages in America were double those in England, but in Italy they were half. In spite of this America by means of its tariff had secured a motor business in excess of the whole of the world put together.

Mr. Edge quoted and criticised sharply, at considerable length, some articles which had appeared in the public press, and in which the motor car export and import figures had been so juggled with, on an entirely false and misleading basis, for political reasons, as to amount to deliberate untruths.

Mr. W. M. Letts, whose letter upon this subject was dealt with in our last issue, confirmed his views as to the remedy. He said there was no reason whatever why in this country we should not by combination manufacture a cheap, good car to push out the cheap American goods. What was required was a car that would last for two or three seasons, but necessarily that meant big capital and combination. If this could be arranged he was prepared to join in.

Mr. Sydney Straker could not agree with all the views which were being expressed. He thought the cheap American car had rather promoted the taste for motorism, and that resulted in benefit to his and other firms. It was rather to continental manufacturers that he looked for harm than to the American traders. Huge factories on the American system would not be possible in this country, as in America they had an enormous advantage and a great asset in the huge home demand of their own population. The great drawback of vast number production was that if a fault or slight defect was embodied in the design, widespread distribution of the cars having that defect must necessarily go through, as it was impossible to remedy this owing to the system which necessitated the whole batch being distributed as originally designed for.

Mr. Blumenfeld thought that it was a mistake to go upon the principle of letting the cheap car go on until it became perfect, as it would then be more difficult to fight against the hold which it would have, and British trade would naturally be greatly crippled.

Mr. Charles Jarrott considered it was an Imperial question, altogether outside politics. He would like to see the suggestion take some practical and active form. It was no use to sit down and manufacture in small quantities whilst the Americans were making in tens of thousands. These cheap cars went to our colonies where they were taken up by reason of new comers to motorism not caring to speculate too high a figure on British cars to start with. We should therefore go upon the same line. It was a mistake to allow new motorists to start on an American car, who would probably then continue using that type. Production at American prices was not only possible but a sound business proposition and it was a question of getting to work upon the problem. That meant the formation of a large compny which should be able to manufacture on a big scale themselves and place extensive contracts if thought necessary, for certain parts. There should be no difficulty to put forward a proposition which would be backed by financiers and afterwards by the public. A company with a capital of £500,000 giving say to start with £300,000 working capital, would be ample to ensure the production of 5,000 cars a year and would enable good dividends to be paid. Protection he thought must come in time and such a company would be the first to reap a huge advantage from the day of its introduction.

Mr. R. W. A. Brewer gave some interesting particulars as the result of his recent visit to America, and what was up against the British manufacturer the whole time was, he thought, the insecurity of his capital under present fiscal arrangements. If we manufactured in large quantities he suggested we could get rid of any surplus by studying local requirements of such countries as Canada and our other colonies, South America, &c.

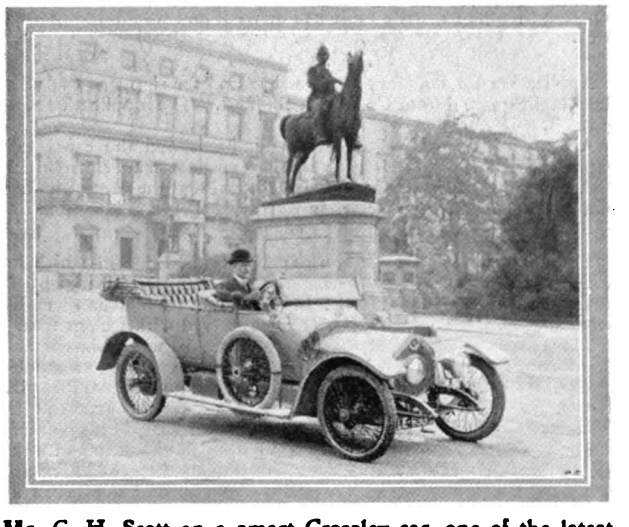
Mr. Frank Shorland protested against a suggestion of Mr. Brewer's that British firms had not as good a system of supervision and organisation as the American. He, Mr. Shorland, thought that the British system was second to none and was the secret of the fine British car. Where the Americans had the advantage was their huge population which provided the means of absorbing the large output of the manufacturers.

Lord Montagu thought that in the American cheap car we were up against a proposition the like of which had never been seen before. During a recent visit to America, from one firm in Detroit he learned that it was proposed by them in 1913 to turn out 250,000 cars. Even if tariff reform came in two years we could not afford to wait that time. Action through financiers should be taken at once, otherwise in that period the American car would be such an established menace that it would be almost impossible to crush it out, but on the other hand by immediate action it might be prevented from getting hold.

Mr. J. S. Matthew thought that rather an alarmist's view of the position of affairs was being taken. He regarded the American demand for cheap cars as one of mushroom growth, and sooner or later it would bring very grave disaster to the makers who were putting such huge quantities of cars on the market. Had British manufacturers adopted similar methods it would have been greatly to the disadvantage of the British industry. British tastes and requirements varied so drastically with the individual motorist that it was impossible to turn out profitably any car in like quantities. He believed, however, his company, Argylls, Ltd., would join in any properly arranged scheme, and if a very simple cheap design in one unalterable standard were evolved it might be possible that they had all the elements in this country to make the scheme a success.

Mr. J. Adams, of the Belsize, said that his directors had upon a visit to America thoroughly approved their methods but not their models. They had instituted such an organisation that their output was increasing by leaps and bounds, and they were now turning out some 80 to 100 cars a week. He thought that the small car had quadrupled the demand for the larger cars, and he certainly considered what his company had done others could also do.

After Mr. Blumenfeld had expressed the hope that the meeting had thrown useful light for the guidance of future action, he hoped to see the Society of Motor Manufacturers and Traders take up the whole question very seriously for the benefit of the trade and country.



Mr. G. H. Scott on a smart Crossley car, one of the latest models by the Manchester firm. Mr. Scott has just returned to New Zealand, where he is the agent for Crossley cars, he having personally acquired a knowledge of every detail of the construction, adjustment and erection of the cars he is handling at the works before returning home. Mr. Scott is very enthusiastic as to the future of really first-class British cars in the colony.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act :—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. H. Pye, trustee; committee, Messrs. Oliver, Rawson, Dean, and Moores.

Applications for membership having been dealt with, the secretary reported that the bagatelle table had arrived, and would be fixed at once.

N.S.C. Garages.

Application for honorary membership and the sign was made by the Gaol Square Motor Co., Ltd., Stafford. The application was granted.

A copy of the Handbook was submitted, and the committee expressed their satisfaction both at the excellent manner in which Messrs. A. J. Wilson had arranged the book, and the large number of advertisers deeming the Society worthy of their consideration.

New Vice-President.

The chairman read a letter from Mr. S. F. Edge in which he accepted the post of vice-president, the committee having by a unanimous vote requested Mr. S. F. Edge to honour them by accepting the position. The letter was received with acclamation.

The secretary submitted a correspondence between himself and the editor of *Answers*, in which paper there had appeared an article, headed "Chauffeur or Clerk," in the issue dated September 7th. He, the secretary, had felt it his duty to answer this article in the interests of chauffeurs generally, for the reason that, in his opinion, it would tend to induce young men to become chauffeurs with the idea of earning exorbitant wages. The committee endorsed the action of the secretary, and regretted the publication of such an article.

The committee agreed to offer the post of trustee to Mr. C. W. Nairne, and the secretary was instructed to interview Mr. Nairne and report at the next meeting.

Matters of minor importance having been dealt with, the meeting closed at 10.15.

Review of Events.

Mr. S. F. Edge, who has honoured the Society by becoming Vice-President, is head of the well-known firm of S. F. Edge, Ltd., makers of the Napier cars. Mr. S. F. Edge is a founder member of the Society, and has at all times taken a keen interest in its work, always wishing to assist and help the committee when a request has been made for his services. He was the principal speaker for the deputation which waited upon the President of the Local Government Board with respect to the Society's Parliamentary campaign. In his capacity of Vice-President, we cannot receive greater assistance in the future than that given in the past by Mr. S. F. Edge, but the committee have the satisfaction of giving honour where honour was due, and they feel sure that all members join them in thanking the new Vice-President for his exceeding kindness and interest in the N.S.C.

With reference to the National Insurance Act, October 7th being the day on which all cards should be sent to the approved societies, members and others are advised not to maintain the obstinate attitude many have adopted towards the Act. It is with us, and having become the law of the land, we must obey. It will not help us in the least to defy the law; and to prevent any trouble arising, if you have not yet obtained an insurance card, write to the secretary for admission form to the Motor Drivers' Approved Section and request him to forward you a card. This is all that is necessary.

The Society is a separate section formed for the purposes of the Act (England only), therefore there is no entrance fee. If you have already joined an approved society connected with any industrial assurance company you would be wise to withdraw, and place your card in a separate approved or friendly society.

Accepted for Membership.

George Renshaw, Hampstead, N.W.

Richard Sales, Co. Galway, Ireland.

Applications for Membership.

Ernest D. Simester, South Croydon.

William Cowie, London, S.W.

F. Harter, London, S.W.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.
Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed
Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.

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Ten Years of Motors, &c.

ONE of the most popular contributions to literature concerning the motor car, when the motorist's library was not nearly so extensive as it is now, was a very interesting book by Mr. Charles Jarrott, entitled "Ten Years of Motors and Motor Racing." The first edition has long since been out of print, and, in response to a large number of requests, Mr. Charles Jarrott has now arranged with the publisher, Mr. E. Grant Richards, to issue a new edition at the all-popular price of half-a-crown.

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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

85.

RUSTLESS SHREWSBURY AND CHALLINER RIMS.—My car is fitted with Shrewsbury and Challiner detachable rims, which I find all right but for the fact that water got in between the steel-banded felloe and the rim. When it was necessary to change a rim on the road owing to a puncture or burst, a large quantity of rust was found on the inside of the rim and on the felloe, and when the rim with the damaged tyre had taken the place of the spare rim on the step this rust did not improve the appearance of my car, of which I am rather proud. To eliminate as far as possible the formation of rust, I employed the following method, which, I am glad to say, not only serves this purpose, but incidentally makes the rims easier to go on and off, and therefore reduces the work of changing.

I took the rim off, and first of all cleaned it and the felloe thoroughly with emery paper so that all rust was removed. Next I gave it a coat of lead colour, when dry followed this up by two coats of good oil paint to match the colour of the car, and then I applied a coat of varnish. When this last coat was hard I applied a fairly thick coating of Russian tallow on the whole inner surface of the rim, including the stems of the security bolts.

When a rim that has been treated in this way is put on the wheel, you will find that some of the tallow is squeezed out and you can easily seal the joint between rim and felloe by passing your finger over it where the tallow is visible both on the inside and outside of the wheel. Any surplus can be wiped off with a rag. When, after some months, you have to take off the rim, you will be surprised to notice how easily it comes away and how nice and clean it looks inside. You need not be afraid of putting it in the cradle on the running board, and your boss will have no occasion for speaking to you about the rust, which, rightly or wrongly, he thinks is a sign of neglect.—*N.S.C.* 942.

86.

KEEPING A WIND-SCREEN CLEAR.—Like many other chauffeurs during these last few months, I have had a good deal of work with but very little protection from the wind-screen of my car. Whenever it was raining—and it has been raining quite a good deal this last summer—I had to lower the screen because of the rain obscuring the view to such an extent that either I had to "chance it" by looking through the obscured screen as best I could, or else I had to try and see past it by leaning over the side of the car. The first is a risk that is not worth running, and the latter soon makes you feel so uncomfortable that you cannot do it for longer than a few minutes. So you might as well fold up your screen as soon as it begins to rain and put on your mackintosh. Of course, I have tried keeping the screen clear by wiping it over with some paraffin, but I find that this is not much good. Paraffin itself is a thing I don't like using on any part of the bodywork, and if used on the screen it runs down on the glass and deteriorates the rubber packing which is interposed between the pane and the actual frame to prevent rattle. There are a number of mechanical devices on the market which are supposed to enable the driver to wipe the screen without leaving his seat and without stopping the car, but all those I have seen are clumsy contraptions of more or less doubtful value.

The other day I happened to mention this difficulty to our chemist, who advised me to use glycerine instead of paraffin. I took the tip, because it occurred to me that glycerine is not so phosphorescent as paraffin, does not smell and cannot hurt any part of the screen or the bodywork. I tried it, and found that it answered the purpose splendidly, in fact much better than I had expected. After cleaning the screen carefully, I just wiped a very small quantity of glycerine on the front of the glass, using a perfectly clean linen rag that does not shed any fluff. I first wiped over the whole surface of the screen, but I found that it is rather difficult to give an evenly thin coating of glycerine to so large a surface, and unless the glycerine is put on in a very thin and even coating, which when looked through is quite invisible, the screen looks as if the glass were wavy. Lately I have treated only that half of the screen which is in front of the driver's seat, and it is really amusing to notice how quickly the untreated part of the screen turns dull, while the treated part remains clear, however hard the rain may come down. Although I renew the coating almost every morning, I have sometimes neglected it for three days, and have found that even then the screen kept quite clear, provided that during the time the car had not been driven through a cloud of dust.

Another thing worth knowing about wind screens is that methylated spirits is far and away the best thing to clean the glass quickly and thoroughly. When using it care should, however, be taken not to spill any on the frame, or any other polished part of the woodwork, on account of the deteriorating action of the spirit.—*W. D. Dixon.*

87.

CLEANING A SOOTED PLUG.—Very few people seem to know that a sooted up sparking-plug can be cleaned quickly and with little trouble by sticking it into the ground upside down, filling it with petrol and applying a match. When the petrol has burnt out, the plug will be found quite clean. In addition to being very expedient, this method has the advantage of preventing the points of the plugs being broken in the process of cleaning when done mechanically.—*No.* 918.

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Members are requested to observe the 10 mile limit through Welwyn. Welwyn–Hitchin road, trench open at side of road, gas main being laid, protected by lights.

LANCASHIRE.—*Blackpool–Poulton Road.*—Members are requested to drive very carefully through Poulton-le-Fylde and district.

St. Helens–Ormskirk Road.—Control likely to be working between St. Helens and Rainford. Road improvements still in progress at Ing-, care needed after dark.

Kendal–Windermere Road.—Road improvements are in progress where the Burneside road branches off; a wall has been moved back about 45 ft. and rounded off, greatly improving the place.

EAST.

Leeds District.—Controls are likely to be in hand at Moortown, Leeds, and through the 10-mile limits in Burley-in-Wharfedale and Ilkley; ¼ mile west of Malton from the first milestone. Control also being worked between Arthington and Pool on the Otley–Bo ton Spa Road, and in Chapeltown Road, Leeds, from Reginald Terrace to St. Mary's Road. Also at Moortown (within the Borough of Leeds).

Colchester–Ipswich Road.—Motorists should drive with caution when entering Ipswich from Colchester as the road on the River Bridge is being repaired and only about 14 ft. of the road is available.

SOUTH.

BATH ROAD.—Members are requested to proceed with special caution between Hounslow and Colnbrook, and to proceed slowly through Maidenhead. Members are advised to drive slowly at night from Sonning railway bridge for about ½ mile towards Reading. A telephone is now available at the Sonning cross-roads AA sentry-box.

BRIGHTON.—Members are requested to interrogate the patrol at Kingswood cross-roads. Timing between Reigate and Dorking. Under repair between Kingswood and Reigate. Control likely to be working at Coulsdon.

KENT.—*Dover Road.*—Timing likely to be in hand at Bexley Heath, Shooter's Hill, Blackheath, and Deptford; also at New Eltham and Sidcup.

LONDON DISTRICT.—On account of timing operations special care is necessary: Regent's Park road; near Church End Station, Finchley, Golder's Green; Redcliffe Gardens; the Boltons; Earl's Court road, S.W.; Victoria Embankment; near Albany Gate; Regent's Park; Mitcham; Morden; Sutton; Banstead; through Croydon to Purley; between Wimbledon and Ewell; Hounslow–Staines; Hounslow–Colnbrook; at foot of Roehampton Hill; Putney Heath; Harlesden; Maida Vale; Highgate; Holloway; Lewisham, High Street; also between Sudbury Tram Terminus and Harrow Hill.

MIDDLESEX.—Control working on Staines–Sunbury Common road.

Wood Green.—For the same reason special care is necessary near the junction of Bounds Green Road and Jolly Butchers Hill.

Controls likely to be working in different places between Southall and Uxbridge.

ESSEX.—*Woodford.*—Special caution between the Police Station and the Bancroft Schools, control likely to be working.

SOUTHAMPTON ROAD.—Controls are being worked at night through Egham. Gas main being laid at Basingstoke. St. Cross Road, Winchester, is being widened. On the Southampton–Christchurch road controls are likely to be working between Christchurch Barracks and Iford Bridge, also at Pokesdown Hill. Southampton district repairs in hand at Millbrook Old Church. Tramway track under repair at Shirley.

SURREY.—Controls are likely to be in force at the undermentioned points: South Godstone station, Ewell and Epsom, Surbiton, between Kingston and Leatherhead.

SUSSEX.—Members are specially requested to observe the 10-mile limit at Uckfield.

WEST.

Chepstow–Monmouth Road.—Members are requested to drive slowly through the village of Tintern.

Special caution advised over east Stour roads, full width of road being remetalled 5 miles west of Yeovil.

Barnstaple Area.—Members are particularly requested to give warning of their approach when nearing corners in this district. Also there are fairs in Barnstaple until the 21st inst., so caution is necessary.

CARDIFF DISTRICT.—Controls likely to be at hand at the following points:—Between Canton tram terminus and Ely bridge on the Cowbridge–Swansea Road, Cathedral Road, from Cowbridge Road to tram terminus, and Leckwith Common, also care necessary on the Monmouth–Newport Road.

MIDLANDS.

Members are requested to slow through Redbourne, Fenny Stratford and Stony Stratford. Fenny Stratford 5-mile limit should particularly be observed.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Official. Changed Addresses.—Will members when changing their addresses kindly make a point of notifying the Secretary, otherwise important communications issued by the Association may not reach them.

The Association in Ireland.—Arrangements have been entered into between the County Council of King's County, Ireland, and the Automobile Association and Motor Union for the Association to supply all necessary direction signs for the adequate marking of important roads in this county.

Members touring in Ireland are informed that the police are timing motor cars over measured distance for three or four miles on the Belfast side of Newry on the road to Banbridge.

To Killarney via *Wexford.*—The Association has for some time past been engaged in a work which has for its object the improvement of the highway from Wexford to Killarney, *via* Waterford and Mallow, in order that South of England members contemplating a tour to Kerry may be able to reach their goal in the shortest possible time. At present the only stretches of this road which are really good for motor travelling lie between New Ross and a few miles to the west of Lismore. The Association's representations have come before both County Cork and County Wexford County Councils with highly satisfactory results. Plans and specifications are being prepared in respect of the County Wexford portion of the road, while arrangements are being made for a deputation to be sent from Cork to the Road Board. Apart from the practical steps which the Association is taking in this matter, plans are nearly complete for the provision of a requisite number of A.A. direction signs.

Speed Limits.—The County Council of Devon have applied for an order prohibiting the driving of heavy motor cars on Axe Bridge, Colyton, and Drayford Bridge, Witheridge, Devon.

An application has also been lodged by the County Council of Hertford for an order imposing a ten-mile speed limit for certain roads at Knebworth. The Association will be represented at the forthcoming inquiries, and members able to provide evidence relating to these applications are invited to communicate with the Secretary as early as possible.

The Local Government Board have granted a ten-mile speed limit for certain roads in the Borough of New Windsor. These roads include a portion of St. Leonard's Road and the portion of Oxford Road situate within the Borough.

Speed Limit Signs.—The Association has been informed by the Rickmansworth Urban District Council that a suggestion that the lamp standard situated within the Rickmansworth 10-mile speed limit area be painted with a red hand to a depth of 24 ins. has been adopted.

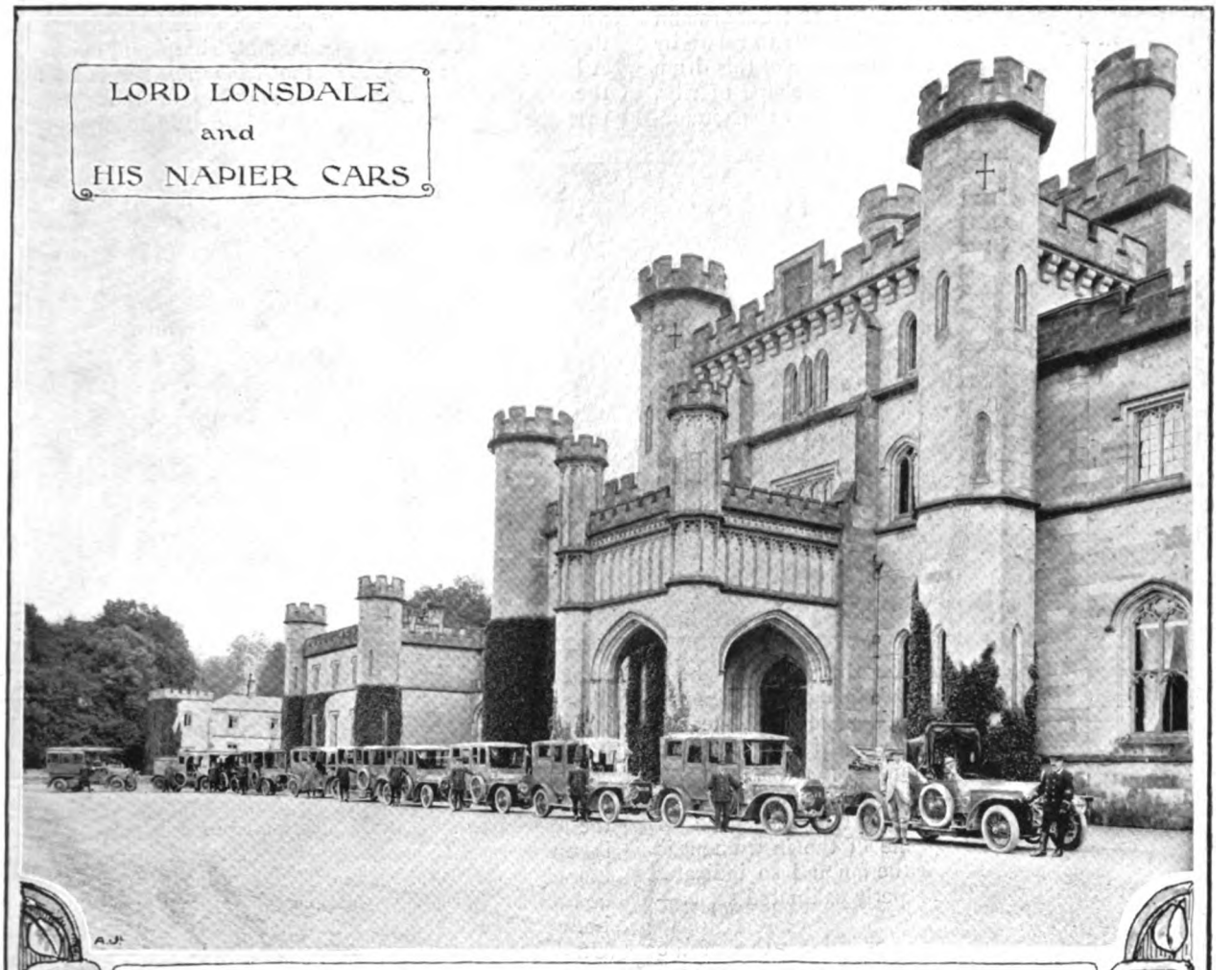
Road Signs.—During the past four weeks upwards of two hundred danger, direction, school, and village signs have been erected by the Association.

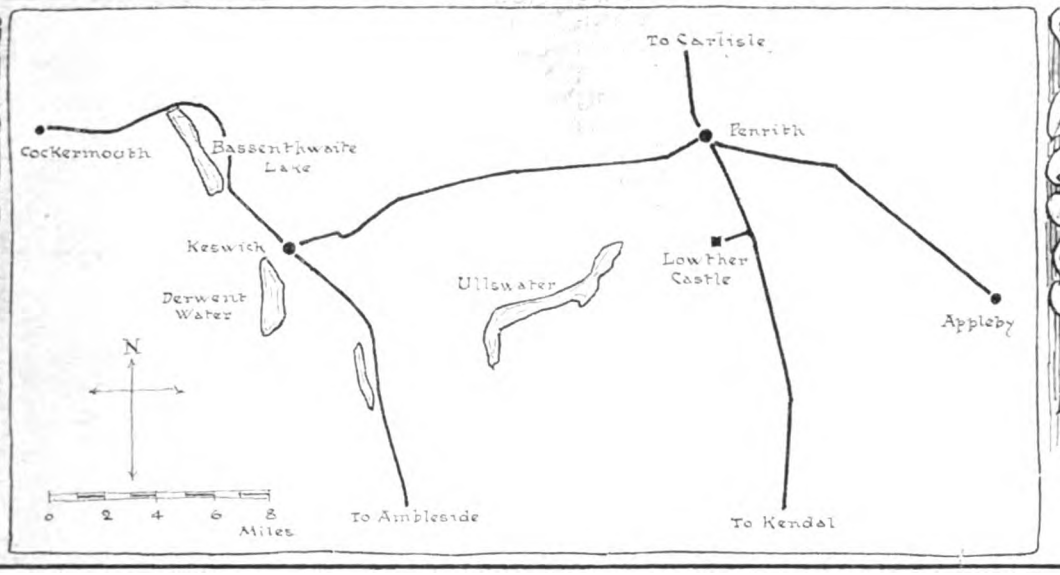
Complaints Regarding Inconsiderate Driving.—The secretary will be glad if the member who sent in a complaint regarding fast driving in Tunbridge Wells will also communicate his name and address. The Association is always ready to investigate such cases of furious driving, but such investigations cannot be based on anonymous communications.

Dangerous Driving.—Members of the association have reported several cases of furious driving of cars up and down Puttenham Hill. Information has been received that unless an improvement takes place the local residents will agitate for controls.

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LORD LONSDALE and HIS NAPIER CARS



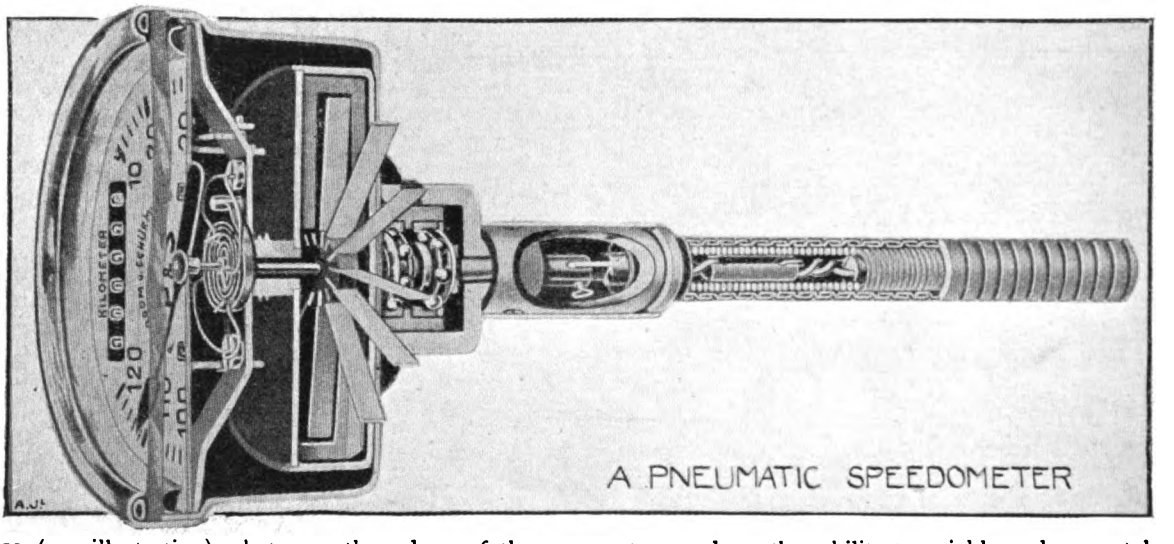


A FLEET OF NAPIER CARS AT LOWTHER CASTLE.—Lord Lonsdale, the owner, is standing alongside the 65-h.p. 6-cyl. Napier in front, which he usually drives himself. His present fleet of cars includes no less than eight Napiers, seven being 45-h.p. or 65-h.p., and one a 15-h.p. 4-cyl. model. Our picture gives some idea of the facilities, for the purpose of entertaining his many and distinguished guests, which an all-round sportsman like Lord Lonsdale finds it necessary to have ready to his hand.

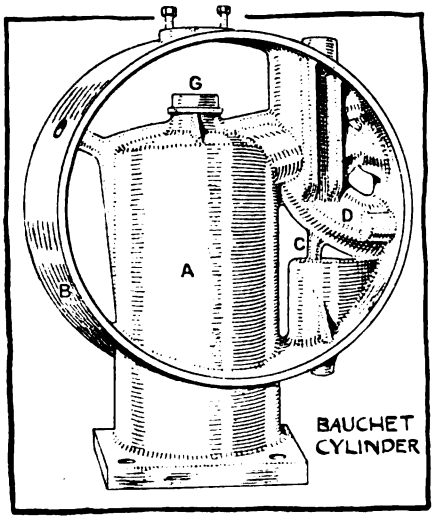
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FOREIGN MISCELLANY.

A pneumatic speedometer has been placed on the German market by Messrs. Peerboom and Schürmann of Düsseldorf. A light metal drum is made to rotate by means of a flexible shaft; on the inner side of this drum are a number of strips of metal in the shape of ribs, radiating from the centre outwards towards the circumference (see illustration); between the edges of these ribs a fan is free to rotate, the result being that when the drum is rotated by means of the flexible shaft, the fan will tend to rotate with it owing to the friction of the air enclosed in the drum; the rotation of the fan is opposed, however, by a spiral spring, so that the distance through which the fan moves is proportional to the speed of rotation of the drum; the needle of the instrument is attached to the same spindle as the fan and so indicates the speed of the vehicle on a properly calibrated scale.—*Der Motorwagen.*

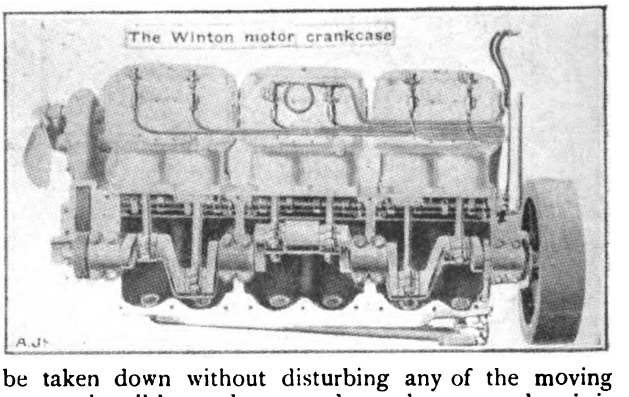


A curiously shaped motor engine cylinder is that of the Bauchet engine. The water jacket consists of a horizontal cylinder together with two circular end plates, the whole enclosing the working end of the main cylinder and the valve pockets. Any number of these cylinders may be bolted together to make up the required power units. The engine is intended for agricultural purposes where the inferior degree of purity of the cooling water sometimes employed renders a water jacket, easily accessible for cleaning purposes, almost a necessity. The same method of forming a "block" motor out of separately cast cylinders has been employed for a number of years in the marine and car engines built by the Maudslay Co.—*Omnia.*



Salesmanship.—Whatever the defects of our neighbours across the "Herring-pond" may be, there is no denying that as salesmen they are remarkably sharp and efficient. A leader on the subject in the *Automobile* seems to hit the nail fairly on the head: "One of the greatest essentials of salesmanship is to be a student of human nature, to have that ability to quickly and accurately pick out the stumbling blocks in the minds of the buyers. It is utterly impossible for the salesman to make a sale unless he is standing on the same level with the buyer. The first big work is to find out where the buyer stands, to know his predominating phase of mental activity. If the buyer has some body scheme or idea in his mind, it is up to the salesman to discover this at the earliest moment. It is quite useless for the salesman to talk control or technical points when the buyer is thinking body conveniences, spring suspension or lighting system. Until the salesman knows what points are dominating the mind of the buyer his efforts are futile; in fact, they are worse than futile—they are actually antagonizing the buyer."

Winton motor crank-case.—A curious example of crank-case construction is afforded by the Winton. In this the crank-case is split vertically, but most of the disadvantages inherent to this method of construction have been avoided by attaching the bearings, cylinders, &c., to the other half (see illustration) so that the near-side half can be taken down without disturbing any of the moving parts; the oil has to be empted out, however, when it is desired to take this half of the crank-chamber down, and some trouble may be expected from oil leakage at this joint.—*The Automobile.*



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RACES, RECORDS AND TRIALS.

The Cadillac Trial to Continue.

ARRANGEMENTS have now been made by the R.A.C. for continuing the trial with the electrical outfit fitted to Cadillac cars. Starting on the 23rd inst., the test will continue for twelve days, during which 2,000 miles over the Club's standard routes is to be traversed, the car leaving the Club's garage at about 8 a.m. and returning at 6 p.m. This portion of the trial will deal particularly with the lamps, and they will be kept alight the whole time the car is running except during the luncheon and tea intervals. The total number of hours during which the lamps will be alight is equal to an average season's use by an ordinary owner. The consumption of current will be recorded by an ammeter under the supervision of the R.A.C. observer. The ignition system on the car will also be tested, as in the Cadillac system the dynamo takes the place of a magneto and at the same time supplies current for lighting the lamps. A record of the condition of the accumulators will also be taken each morning before the car starts.

The Pathfinder Car Trial.

IN connection with the official trial conducted by the R.A.C. from July 22nd to August 6th with a 27·3-h.p. Pathfinder car over the Land's End to John o' Groats course the official certificate has just been issued by the R.A.C. This states that the route followed was London, Andover, Shaftesbury, Exeter, Land's End, Bristol, Gloucester, Preston, Carlisle, Lanark, Stirling, Perth, Blair Atholl, Inverness, Tain, Bonar Bridge, Clashmore, Helmsdale, Berriedale Hill, Wick, John o' Groats. The return from John o' Groats to Stirling was over the same course, thence to Edinburgh and by the usual route to London.

The total distance covered was 1,934·75 miles. For this distance, with the following exception, the car was started and driven upon top speed. The driver made seven attempts to climb Berriedale Hill upon top gear, the last attempt being successful.

At the discretion of the driver either the engine was stopped or the gear put in neutral when descending hills. The car was oiled and greased before the start each day. In addition, 56 mins. 32 secs. (of which 54 mins. 57 secs. was spent upon the road) was occupied as follows :—

Adjusting hand brakes	25 secs.
Adjusting lubricating oil pump, four periods totalling	54 mins. 27 secs.
Putting Fuller's earth on clutch	30 secs.
Tightening air pressure pump	1 min. 10 secs.

The road portion of the trial was covered (running time only) at an average speed of 19·6 miles per hour. The petrol consumed was 88·59 gallons, being a consumption of 21·84 miles per gallon, or 29·00 ton miles per gallon. During the trial a fair amount of rain fell.

After the road portion of the trial the car was driven to Brooklands Track and timed over the flying half-mile. The speed attained was 55·92 miles per hour. No observation of reliability or fuel consumption was recorded while the car was travelling from London to Brooklands, but the car remained under observation at all times.

The following are the particulars of the car :—

Bore and stroke of engine	105 mm. × 103 mm.
Number of cylinders	4
Weight of car, front axle	13,45 lbs.
,, back axle	1,277 ,,
Total weight	2,622 ,,
Weight of load	353 ,,
Running weight	2,975 ,,
Gear ratio on top gear	4 to 1
Size of tyres	34 in. × 4 in.
Wind area of body	12·8 sq. ft.
Country of origin	U.S.A.

Record Breaking at Brooklands.

ON Tuesday morning, at Brooklands, a 12–16-h.p. Sunbeam succeeded in beating the world's records for four and five hours and 400 miles, which stood to the credit of the 30-h.p. 6-cyl. Sunbeam. The car also beat the Class E records up to five hours, recently set up by the Star car. The new records are—1 hour : 79 miles 1,673 yds. ; 2 hours : 158 miles 994 yds. ; 3 hours : 237 miles 98 yds. ; 4 hours : 319 miles 242 yds. ; 5 hours : 391 miles 1,429 yds. The time for 400 miles was 5h. 5m. 53s. The last three are world's records. The old world's records were 4 hours : 300 miles 1,421 yds. ; 5 hours : 373 miles 135 yds. ; 400 miles : 5h. 20m. 31s.



MIDDLESEX COUNTY A.C. RELIABILITY AND SPEED-JUDGING RUN.—On the left is a group of officials at Towcester. In the centre, from left to right, are Col. Henry S. Bowles, J.P. (Chairman), Messrs. H. Wilkins Norman (Hon. Sec.), W. J. Lendrum (Hon. Treasurer), and E. J. Everitt. On the right is a view of the cars assembled on the St. Albans-Barnet road before the start.

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Motor Cycle Racing at Brooklands.

Two races made up the programme of the British Motor Cycle Racing Club on Saturday last at Brooklands. Both were over a distance of 150 miles, one being for the junior machines in the Tourist Trophy Race and the other for the senior class. In the former, which started at a quarter past eleven, there were eighteen starters, and after a good deal of sorting out, S. L. Bailey, on a Douglas, emerged as the leader at the end of the first lap, with F. G. Edmunds and Alan Woodman on Humbers in the second and third positions. Tyre troubles were fairly frequent, and one competitor had his back cover blown off the rim no fewer than three times. Broken valves also put a number of machines out of the race, and Sam Wright, after working himself up into the second position, was forced to retire when his back cylinder blew off. Running with extraordinary regularity, Bailey maintained his lead to the end, and was then signalled to continue so as to set up a new record for three hours in Class B. This he did, the distance being 159 miles 990 yards. His time for the 150 miles was 2h. 29m. 25s., and of the other four to finish Hugh Mason was second on a N.U.T. in 3h. 0m. 35s. Alan Woodman was third on the Humber, A. J. Jenkins fourth on a Douglas, and F. A. McNab fifth on a Douglas.

A fine array of 26 riders lined up for the start of the Senior event, and left very little room for the two Junior machines, which had not finished, to get past. Although their starters were very cramped in their work, all the competitors got away successfully, with the exception of Axford, who had his oil-pump smashed through a collision with a starter, and could not go on. The pace was set by Hill on a Rudge, but after a time he gave way to Collier and Godfrey, while Emerson, on a Norton, kept in the front rank. He very nearly captured the hour record, and anyway set up records in Class B for 100 miles—1h. 33m. 25$\frac{2}{5}$s.; two hours: 127 miles 645 yards; and for 150 miles, 2h. 20m. 52s. He was going on to try and beat the three-hour record, when his back tyre blew off, and necessitated the attempt being abandoned. The fact that he beat the record for 150 miles shows that he was easily the winner of the race, J. R. Haswell, on a Triumph, being second, in 2h. 34m. 8$\frac{3}{5}$s., with O. C. Godfrey, on an Indian, third, nearly 1$\frac{1}{2}$ mins. later. P. Weatherilt and E. B. Ware, on Zenith machines, filled the fourth and fifth places.

M.C.A.C. Reliability and Speed Judging Run.

On Saturday last the Middlesex County A.C. held their 100-mile Reliability and Speed Judging run for the Banbury Cup over a course from Barnet to Towcester and back. Before starting from Barnet, each competitor secretly declared the average speed at which he intended to travel the distance out and home, and marks were deducted from the 1,000 allotted to him at the outset, for every minute variation from the speed. Marks were also lost for every involuntary stop on the road, except for traffic or other such reason; and for any time above one minute occupied in starting away from Towcester after the starting signal given to each driver by his observer.

The winner proved to be Mr. E. Paul Fischer (10–12-h.p. Gladiator), who lost only 15 marks, being 2 mins. fast going out and but one minute slow returning. Mrs. Henry G. Bowles (15-h.p. Schneider) and Mr. W. Pringle (20·1-h.p. Singer) tied for the second place, each losing only 40 marks for a total of 8 minutes speed variation. Only three competitors made any involuntary stop on the way, all owing to tyre troubles. One lost 30 marks by delay in starting his engine at Towcester.

MOTOR BOATING.

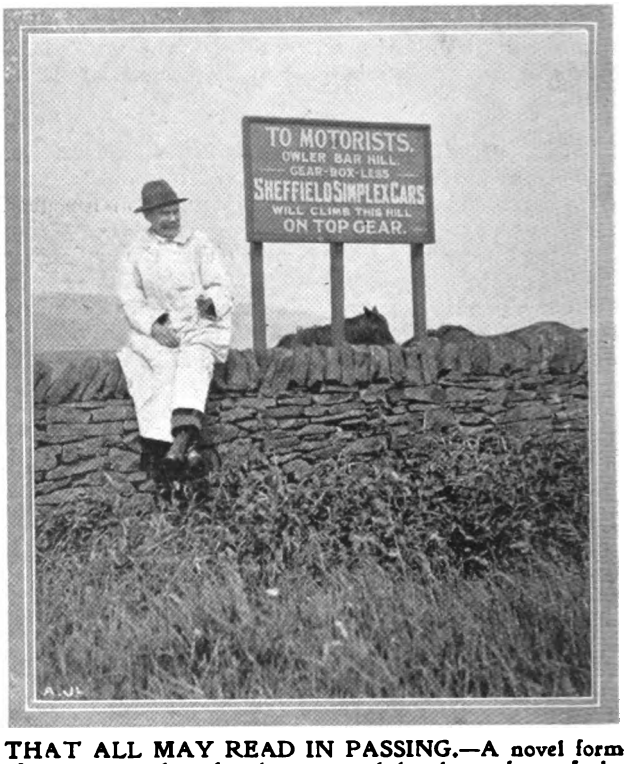
Repairing "Maple Leaf IV's" Rudder.

Seen on board the "Enchantress," on Saturday last on his return from the States, Mr. T. O. M. Sopwith, who steered "Maple Leaf IV" to victory in the B.I.T. races, referred to the smart repair to "Maple Leaf's" rudder on the eve of the first race. After the mishap the crew at once set to work and keep at it practically all night, but in the short time at their disposal it was impossible to turn out anything like the original rudder. Considerable difficulty was experienced in the steering of this boat, which undoubtedly under ordinary circumstances would even have far exceeded the splendid records she eventually accomplished round the course.

Motor Boating at Southend.

Four boats took part in a handicap held by the Nore Yacht Club, Motor Boat section, on Saturday last, and the winner proved to be Mr. R. H. Edwards' "Bonnie Mollie," beating Mr. A. Wheeler's "Grayling" by two minutes, while Mr. W. B. Tattersall's "Spitfire" only failed to get second place by seven seconds. The course was the Pierhead-Lowway buoy one, and "Spitfire," the scratch boat, took 16 mins. 55 secs., and allowed "Grayling" 10 mins. 38 secs. and "Bonnie Mollie" 11 mins. 10 secs.

The *Daily Telegraph* Cup for the best average of the season has been won by "Spitfire" with one first, one second and three thirds.



THAT ALL MAY READ IN PASSING.—A novel form of warranty, which has been erected by the makers of the Sheffield-Simplex car, which speaks for itself. Owler Bar is a steep hill in Derbyshire, rising to 1,100 ft. above sea level. It is particularly convincing to motorists who happen to have just finished climbing this stiff grade, to find the simple hard fact of what the Sheffield-Simplex will do staring them in the face. The figure on the wall is Mr. F. B. Cawood, Secretary of the Sheffield and District A.C.

For Garages Open Sundays, see "Auto." Guide every week.

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CORRESPONDENCE.

The United States Motor Co.

SIR,—You have no doubt seen the announcement in the daily papers that a receiver has been appointed for the United States Motor Co.

The United International Motors is, as you are aware, the European branch of the United States Motor Co.

Immediately we saw this announcement in the papers we cabled to our New York house, asking them to send a communication for the English Press, and we have this morning received the following cable, which we would request you to publish in your next issue:—

"Company perfectly solvent. Receiver has been appointed for the protection of all concerned. Company is now reconstructing. Business is going on as usual."

We might state that we knew for some months past that reconstruction was under consideration.

We might further state that all our plans for Season 1913 are thoroughly under way, both in America and in England, and that there are two new models being prepared for this country, we having received notification only this week that all the factories of the United States Motor Co. are now running at their full capacity, and are at the present moment daily shipping 1913 cars.

The 1913 models for the English market will be arriving during the next two or three weeks.

UNITED INTERNATIONAL MOTORS, LTD.
J. K. CROWTHER, Managing Director.
212-214, Great Portland Street.

Petrol Supply—A Protest.

SIR,—We have just had a sight of a letter which is apparently being sent round to the members by the Committee of the A.A. and M.U. in which they ask them to fill in a postcard stating what amount of petrol they are prepared to contract for in the event of the Association being able to secure a supply at 1*s.* 2*d.* per gallon, including present tax.

We feel sure in making our protest against this unfair trading we shall not stand alone—not only in the motor trade, but in the motoring world generally. The A.A. and M.U. was founded for the protection of *unfair treatment* to motorists, and was surely never intended as a source of supply in any shape or form.

The Committee are men who have to discriminate between *fair* and *unfair treatment*, and we are surprised that they can put this scheme forward, which is without doubt a most unwarrantable and unjust treatment of the motor trade.

No reason is given for this step in their letter, and we think, as the oldest motor house, we are justified in asking the Secretary to give an explanation through the medium of your valuable columns.

For FRISWELLS, LTD.
SYDNEY C. CURTIS, Publicity Manager.

Self-Starters.

SIR,—I notice that your correspondent in his rather personal letter on the above subject takes unto himself and the electric self-starter, in which he is interested apparently, all my criticisms of self-starters. He overlooks one point, and that is that I am not personally interested, commercially or otherwise, in any self-starter at the present time, except as a would-be buyer. Of self-starters I have investigated a great many, and I set out in my previous letter that for my own use there were no self-starters on the market in which the disadvantages did not outweigh the advantages of self-starting.

Your correspondent's self-starter may be quite good to merely turn the engine, but personally I should not care to carry all the weight merely for this purpose. When used as a lighting set, which is one of the special points put forward, it would not appeal to me at all, as it is such an inferior apparatus for lighting a car compared to what I normally use, and therefore I should not be prepared for the sake of the self-starter to revert to a poor light-giving system. I also would not like to give up my modern up-to-date magneto and ignite my car from this self-starter and light-giving apparatus, as it is quite possible it may be an equally poor igniting apparatus compared with the modern magneto, as it is a poor light-giving apparatus compared with the up-to-date lighting set, designed purely for this purpose.

Personally it does not appeal to me to have gear wheels running open to the air, as is the case with this apparatus your correspondent champions, and I think a motor car that necessitates gear wheels open to the dust, &c., is not at all an interesting proposition, at any rate to me.

I have set out a few of the disadvantages that strike one off-hand.

It would also be instructive if your correspondent would say whether it is not a fact that for next year the makers of this particular apparatus which he champions are very materially altering it, showing in my opinion pretty conclusively that it is not perfection this year, which your correspondent rather suggests.

At any rate, I am not yet convinced that it is advantageous, as your correspondent suggests, that a car should start, light and ignite itself from one unit, when, so far, to do it means that each job is done less perfectly for my use, as compared with the proper apparatus for each purpose. Make-shifts for various purposes do not appeal to me.

Whatever my apparatus is for, I like it to be as perfect for its particular purpose as it is possible to get it. S. F. EDGE.



ROUNDABOUT NOTES.

THE success of the new 10-h.p. Turner light petrol car at its first appearance in competition at the hill-climb of the Leicester A.C., when it won the Usher Cup and a gold medal, augers well for its future. It is fitted with a 4-cylinder (60 × 110) engine.

PIRELLI Tyres were well to the front at the Ostend Meeting, Hautvast, on a Sava car so fitted, winning the William and Vanderlinden Cups; while Gooseman, on a Pirelli tyre F.A.B., was first in the Liedekerke Cup and second in the Vanderlinden Cup. In the Grand Prix d'Ostend Team race Sava cars were first and the F.A.B. team second, all on Pirelli Tyres. The course of 700 kilom*s*. included 400 kiloms. of Pavé.

OWING to the continuous growth of business this season, Mr. S. G. Cummings has found it necessary to remove to larger premises, admirably adapted to showroom purposes, at 115, Fulham Road, S.W. Here, in future, will be found the S.C.A.R., Crespelle, and C.L.C. cars, with which Mr. Cummings is so closely associated, together with the Stoewer, for which he has recently been appointed London agent. The S.C.A.R. and the Crespelle have won big reputations at Brooklands this year, nor is the Stoewer altogether unknown on the track. Mr. Cummings should have a busy time before him.

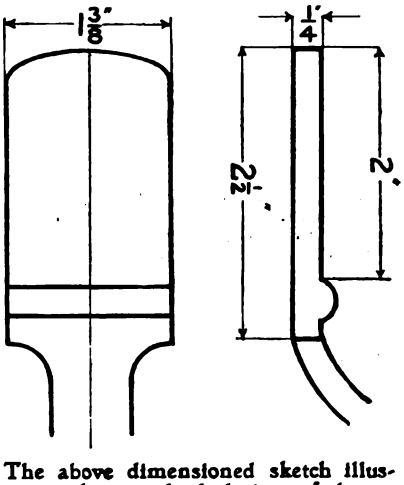
THOSE who study their tyre bills should note that Messrs. Spencer Moulton announce a substantial reduction in the prices of their tyres. For instance, the prices of the 3-ribbed tyre, 810 × 90, is now £4 12*s.* 6*d.*, while the 815 × 105 size is priced at £6 4*s.* 9*d.* Of course the quality and workmanship remains as good as ever. Why not send to Messrs. Geo. Spencer Moulton and Co., Ltd., 79, Cannon Street, London, E.C., for their latest list?

BY a cablegram from Johannesburg comes word of another Austin victory, a 10-h.p. Austin winning a speed event there with an average of 48 miles per hour. The car was the identical demonstration one which did so well in the recent reliability trial, and it is added that for a perfectly standard colonial pattern with 16-tooth pinion, to maintain such a speed over Transvaal roads is highly creditable to both driver and car.

MANY requests have recently been received by the Sunbeam Motor Car Co., Ltd., for details of the new Sunbeam motor cycle, with the manufacture of which they have nothing to do. This new motor cycle is being made by Messrs. John Marston, Ltd., Wolverhampton, of Sunbeam bicycle fame, to whom all enquiries should be addressed.

J. MILTON RANDALL, LTD., of 199, Piccadilly, W., make a speciality of tuning up cars for private owners or for any special purpose, such as hill climbing, &c. They also are able to supply new and second-hand cars of any make, and can give estimates for any repairs or overhauls.

THE date of the annual banquet of the Cycle and Motor Trades' Benevolent Fund has been changed to Thursday, October 24th, 1912.



The above dimensioned sketch illustrates the standard design of lamp-bracket recommended by the Society of Motor Manufacturers and Traders, to which all makers of cars and lamps should henceforward adhere.

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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application ; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

19,163. Aug. 26th, 1911. Improved Hydraulic Transmission Apparatus. Frederick Lamplough, Albany Works, Cumberland Park, Willesden Junction, N.W.—This invention relates to hydraulic transmission apparatus of the kind in which two sets of pumps are arranged concentrically with respect to two shafts, one shaft being the driving-shaft and the other the driven shaft. In such apparatus it is usual when the two

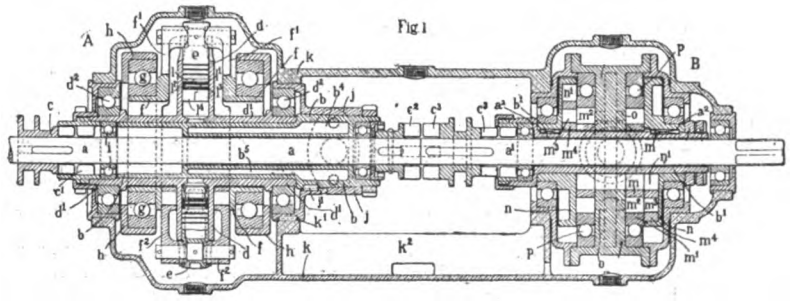
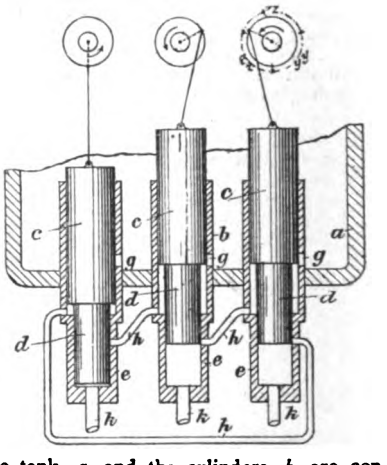


Fig 1

shafts have acquired the same speed of rotation, to unclutch the second set of pumps from the shaft driven thereby and to clutch the two shafts together. In this invention another clutch connects the primary pump with its shaft. By this means a direct drive of the shaft is obtained without operating either pump. Fig. 1 is a longitudinal section through the axis of a complete hydraulic transmission apparatus. The primary pump or pumps, A, are driven by the engine-shaft, *a*, and a secondary pump, B, receives the fluid from the primary pumps, A, and acts as a motor. These pumps, A and B, are arranged to rotate on the same axis, each pump being mounted on a sleeve, *b* and b^1, surrounding separate shafts, *a* and a^1, in line with each other. The engine-shaft, *a*, has a clutch, *c*, which engages another clutch, c^1, fixed to a sleeve, d^1, of the primary pumps. The other end of the engine-shaft, *a*, has a clutch, c^2, fixed thereto. The shaft, a^1, on which the second pump, B, rotates has a sliding clutch, c^3, which may act to connect the sleeve, b^1, of the secondary pump, B, to its shaft, a^1, or it may act to connect the two shafts, *a* and a^1, thereby obtaining a direct drive from the engine. The primary pump, A, is in the form of a wheel having a number of pump barrels, *d*, radiating from its sleeve or centre, d^1, each barrel, *d*, having a plunger, *e*, which is reciprocated by means of a pair of eccentric flanged drums, *f*, having driving arms, f^1, connected to one of the plungers, *e*. The other plungers, *e*, are pin-jointed to the drums by connecting-rods, f^2. These drums, *f*, are mounted in ball bearings, *g*, which latter are mounted at the centre of levers, *h*, fulcrummed at one end and movable at the other end by means of a screw. When this movable end of the levers, *h*, is in its central position, the drums, *f*, are then concentric with the shaft, *a*, and no motion is imparted to the plungers, *e*. According to which side of the main shaft the movable end of the levers, *h*, is placed, the liquid is pumped in one or the other direction, and according to the position of the levers more or less oil is pumped. The sleeve, d^1, is mounted in ball-bearings, d^2, and carries ball bearings, *i*, supporting one end of the engine-shaft, *a*. The sleeve, *b*, has a suction port, b^2, and a delivery port, b^3, communicating with suction and delivery passages, b^4, b^5, semi-circular in cross-section, leaving a central space through which the engine-shaft, *a*, passes. As the pump-barrels, *d*, and pistons, *e*, alternately pass the ports, b^1, b^3, they suck in and expel the liquid being pumped. The sleeve, *b*—to prevent rotation, and to keep the suction and delivery openings tight—is tapered at the end, and fitted into a short sleeve, *j*, being prevented from rotating in the short sleeve, *j*, by means of a key, j^1; while the short sleeve, *j*, in turn, is prevented from rotating in the casing, *k*, by means of another key, k^1. The secondary pump, B, has two ports, indicated by dotted lines at *o*, either of which may be the inlet or the outlet port. One of these ports, *o*, is connected with the passage, b^4, and the other is connected with the passage, b^5, by pipes not shown. The oil will thus be pumped direct from the pump, A, to the pump, B, and will be sucked back from the pump, B, to the pump, A. Into the passages, b^4, b^5, leading from the suction and delivery ports, b^2, b^3, in the central sleeve, *b*, of the primary motor, are fitted branch pipes (not shown), with non-return valves communicating with the lower part of a chamber, which is kept partially filled with oil, thus enabling the primary set of pumps, A, to make good any leakage that may take place from the secondary motor, B, back into the said chamber. It is necessary, owing to the high pressure involved, that the plungers should be perfectly tight. The lower end—that nearer the fluid—is reduced, and upon the reduced part is fitted, first, an elastic split-spring ring, *l*, and then a solid externally-grooved ring, l^1. This is followed by a second spring, l^2, which in turn, is followed by another solid externally grooved ring, l^3, the whole being locked by a spring bucket ring, l^4, which snaps into a recess in the reduced part and keeps the whole in position. The secondary motor, B, is of that type in which an inner floating tube, *m*, is arranged eccentrically with respect to the driving shaft a^1, the inner tube, *m*, being surmounted by an outer tube, m^1, concentric with the inner tube, and segmental pistons, m^2, being located between the two tubes, *m*, m^1. These pistons, m^2, by means of discs, *n*, fixed on the sleeve, b^1, by keys, a^2, are caused to approach and recede from each other in rotating between the two tubes *m*, m^1, thereby sucking in or receiving fluid from one port and expelling it at another port; these ports are indicated by dotted lines at *o*. Each of the discs, *n*, has a number of radial slots, n^1, to receive pins, m^3, projecting from the segmental pistons, m^2, and these pins each carry a roller, m^4. The discs, *n*, are arranged one in advance of the other, so that the slots, n^1, in one disc. are intermediate of those in the other disc. Thus, if each disc, *n*, has three slots, n^1, and there are three pistons, m^2, driven by each disc, *n*, there will be, when the pump is used as a motor, six impulses per revolution. The outer tube, m^1, surrounding the segmental pistons, m^2, is the inner ring of a ball bearing, *p*.—August 28th, 1912.

18,886. August 22nd, 1911. Date claimed under International Convention, July 15th, 1911. Improvements in and relating to Lubricant Pumps. Daimler Motoren Gesellschaft, Fabrikstrasse, Unterturkheim, Germany.—The present invention relates to lubricant valveless oil pumps having differential plungers so interconnected that each plunger operated, not only forced the oil to a respective working part, but also operated as a distributing valve. The number of pumps in certain cases may be equal to the number of parts to be lubricated. It is possible to employ three differential pumps so interconnected as to be capable of distributing to one another and to supply three working parts; *a* is the oil tank, *b* are the cylinders of larger diameter in which work the larger diameter parts, *c*, of the differential plungers, *c*, *d*. The small diameter parts, *d*, work in smaller cylinders, *e*. The cylinders, *b*, are each provided with an inlet-port, *g*, within



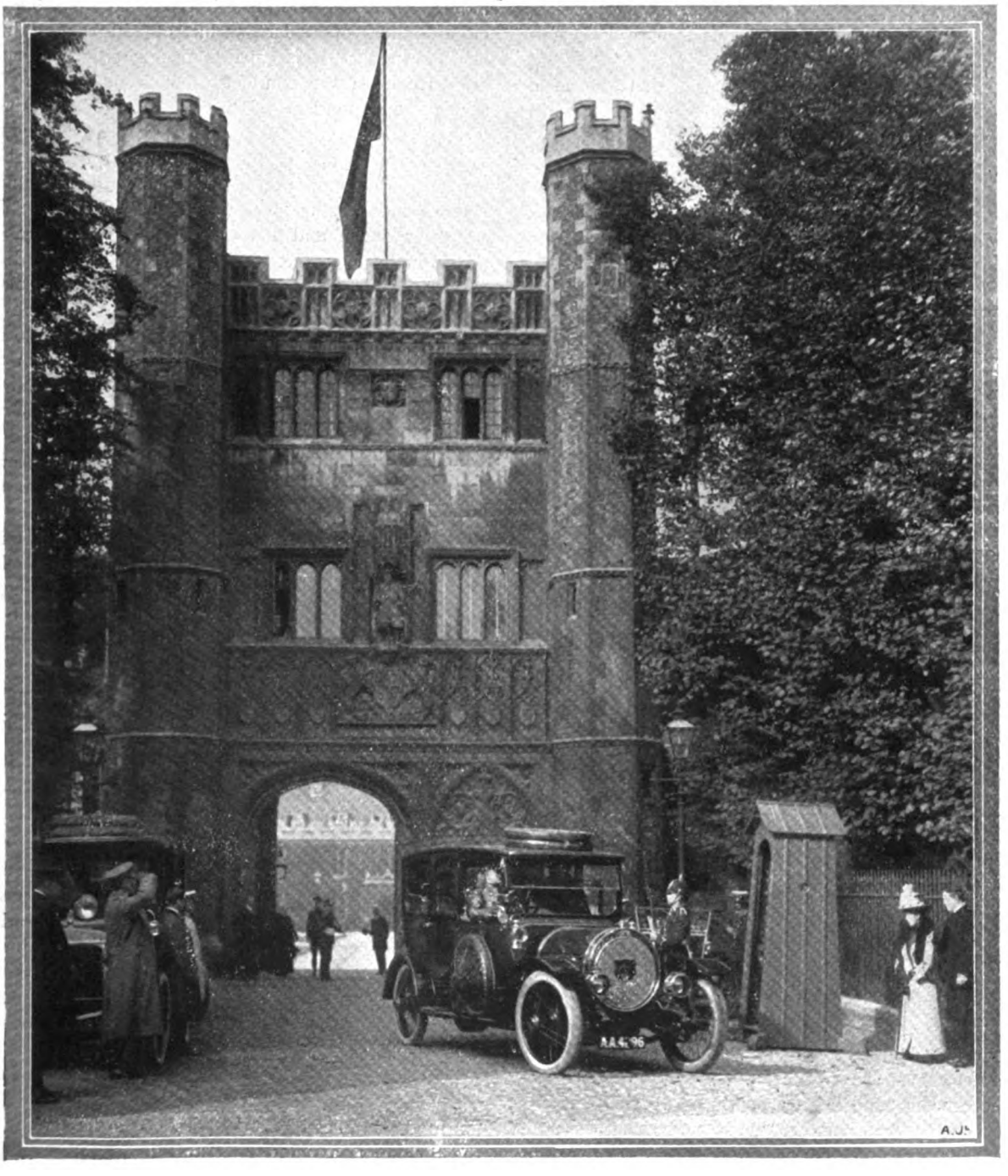
the tank, *a*, and the cylinders, *b*, are connected with respective cylinders, *e*, by pipes, *h*. The right-hand larger cylinder is connected with the middle small cylinder, and the middle large cylinder is connected with the left-hand small cylinder, and the left-hand large cylinder is connected to the right-hand small cylinder. The crank-circle on the right has marked off upon it forcing or delivering period, *x*–*x*, the closure period, *v*–*y*, and the opening period, *z*–*z*. It will be noticed that the forcing period is a little less than the period of opening. The left-hand plunger is in its lowermost position, and has just finished forcing oil by means of its annular area to the space beneath the right-hand plunger, *d*. The right-hand plunger is about to close its ports, and the plunger, *d*, is about to force the oil beneath it through the pipe, *k*, to the respective part to be lubricated, while the annular area of the part, *c*, is about to force oil through the pipe, *h*, to the space beneath the middle plunger, *d*, which latter is just about to uncover its port. Meanwhile the left-hand plunger commences its upward stroke, and inasmuch as the right-hand plunger, *d*, has closed its port, the left-hand plunger part, *c*, cannot suck oil back from the right-hand cylinder, *e*. —August 28th, 1912.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

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AT THE MANŒUVRES.—King George leaving Trinity College, Cambridge, the headquarters of His Majesty, for the scene of the operations in one of the official cars. Note the distinguishing Crown in the centre of the radiator.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

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Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

Mechanical Transport in the Recent Manœuvres.

So far as we are aware nothing of an official nature has yet been made public as to the efficiency of the mechanical transport during the course of the recent Army Manœuvres, though it is to be hoped that some pronouncement will be made in the course of time. From the point of view of those interested in the subject of mechanically propelled transport, this year's operations have a particular significance, inasmuch as they were marked by the employment of motor vehicles to an extent hitherto unknown in connection with military operations in this country. Moreover, the new system of War Office subsidisation was to some degree on its trial, though in excuse of any possible shortcomings it may be noted that this system of utilising privately owned motor vehicles has not been in existence for a sufficient time to enable it to achieve that co-ordination which bespeaks absolute efficiency of service. At the same time, it should be made clear that nothing in the way of criticism of the manner in which these vehicles did what was required of them has found expression in any of the published accounts of the manœuvres. Indeed, all these accounts agree that the transport this year reached a marvellous level of efficiency, and it is hardly too much to say that the motor vehicle not only proved itself adaptable to all the circumstances of modern warlike operations, but that it has shown that it is capable of exercising a marked influence upon the conduct of such operations. The special correspondent of the *Morning Post* with the "Blue" force pronounces the results as being most satisfactory, expressing the opinion that the establishment of the more rapid supplies and ammunition service undoubtedly gives to commanders at the front a greater scope and liberty of action. This was felt all through the manœuvres, at which halts and delays, so vexatious in the past were reduced to a minimum, and the unchecked marching enabled ground to be covered and positions gained without anxious reference to food arrivals. The lorries, always running well within their powers, were able to serve the troops irrespective of distance. On the "Blue" side 99 vehicles were employed, Northampton being used as an advanced base from the base at Birmingham, and supplies were sent to Bedford, which became the regulating station from which the distribution was effected. The horse transport with the troops came back one march to load off the lorries, which were used in the form of an extension of the railway system. Thus fast traffic was brought up by mechanical means over long distances to the horsed wagons actually serving the firing line. According to the same correspondent, the Quartermaster-General to the Forces and the Director of Transport are well satisfied that troops can, in the future, have, thanks to the motor vehicle, complete tactical freedom from all questions of supply. Practically, the General Staff were relieved of all anxiety on the score of food supplies and ammunition, and as a service condition could make tactical movements without considering the limitations of horsed transport. To say that the motor vehicle has effected a revolution in modern warfare would possibly be going too far, and would be, besides, very nearly an impertinence upon the part of the mere layman, but it is impossible to avoid the conclusion that it is likely to effect great and far-reaching changes in the conduct of war in countries provided with good roads. It is an axiom of war that an army marches on its belly, which is really another way of saying that its movements are in exact relation to the exigencies of its food supplies. Lord Kitchener's re-conquest of the Soudan is a pointed illustration of this elementary maxim. The actual fighting which decided the fate of the Khalifa and his *regime* accounted for a simple

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matter of hours, but years were occupied in perfecting the transport arrangements in order that supplies might be instantly available at enormous distances from their principal base. Lord Kitchener built a railway across the desert and ran his supplies up by train, but it is much more than merely probable that his successors in similar operations will construct roads and get to the end of the business in half the time by the use of mechanical road transport. Truly the motor vehicle passes from triumph to triumph!

◆ ◆ ◆

The Policy of the Road Board.

In certain quarters the policy of the Road Board is being met with bitter criticism. It is not doing the right thing in any direction, and even its wrong-doing is being done badly. The money that is being collected from the motorist for the Board to administer is either being frittered away in useless coats of tar on main road surfaces or is being "hoarded" for ultra-magnificent schemes with which it should really not concern itself. These, briefly, are the charges which the unfortunate Road Board is having levelled against it.

We wonder if the critics have any conception of how difficult a task it is that the Road Board has to carry out, or if they have paused to think of the many disabilities under which the work of the Board has to be carried on? Criticism is a exceedingly useful thing in its way, but it must be applied with judgment, and in the light of a full knowledge of all the facts. For our own part, we do not propose to adopt the *rôle* of apologists for the Road Board and its work, but we do desire to place on record our conviction that with the material at its disposal the Board has done very well indeed. Since it came into being it has had the nominal handling of, in round figures, two millions of money, about half of which has been spent or allocated to certain works of improvement in various parts of the country. The balance it is accused of investing until such time as things are ripe for the magnificent schemes to which passing reference has already been made. Whether the Board has done all that it might or whether its general policy is along precisely the right lines we are not disposed to argue at the moment, but we desire to point out that the Board has not been in existence for two years and that to expect its work of regenerating the roads to be completed in that time and with the money at its disposal is sheer futility. It must not be forgotten that the demands made by various local authorities on the funds of the Board have been many hundreds per cent. in excess of the amount at its disposal, and that each application for aid has to be decided on its merits—which necessarily means expenditure of time, to say nothing of the work involved. Again, in the matter of the charge of hoarding money, do the Board's critics really imagine that the sums derived from the petrol and motor taxes are paid straight into the Board's coffers by the collecting authorities? Possibly they may have heard of Treasury control, and of how difficult it is to get that department of State to disgorge even money directly voted by Parliament for administrative purposes. Under the present system of Treasury control of the great spending departments of State—for that is what it amounts to—it does not follow that funds are immediately available for works which those departments may consider urgently necessary, and therefore it is not always within the power of a department such as the Road Board to pay over money even out of sums which it has nominally at its disposal. The system is undoubtedly a most pernicious one, for it means that the work or desires of a responsible department may be dependent upon the mere crass obstinacy of a Treasury clerk. But it is one of the anomalies of our governmental system which should be taken into account before accusing any department of "hoarding" its funds. By all means let us keep the Board well in sight and, when it is necessary, "jump on it with both feet," but it is early yet for a drastic condemnation of its omissions and short-comings.

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Local Authorities and the Motor Omnibus.

It is very evident from the tone of the discussions that have been taking place at the Conference of the West London District Councils at Richmond that local metropolitan authorities are labouring under a great and increasing sense of grievance on account of the enormous growth of motor omnibus traffic over their roads. It must be admitted, too, that there is certainly a *prima facie* right on their side to demand that the taxes imposed upon the new traffic should bear their proper proportion of the cost of keeping up the highways over which it plies, although the Conference go further than this, and seek to impose a direct tax upon the vehicles for local purposes—a quite unreasonable demand. The sense of the Conference was expressed in the terms of a resolution, which was passed without dissent, to the effect that in the view of enormously increased cost of road maintenance due to the development of heavy motor traffic, those who conduct such traffic should be required to contribute substantially towards defraying the cost, particularly in areas where motor omnibuses run over defined routes. It was further resolved by the Conference that the Government should be asked to include in next year's Finance Bill a clause providing for payment to the local authorities affected of the proceeds of the petrol tax, or any other tax on heavy vehicles mechanically propelled, in proportion to the use made by such vehicles of the roads.

If the last suggestion had stood by itself we might have felt ourselves justified in going the whole way with the delegates to the Conference. As we have said already, we are entirely in sympathy with these local road authorities in this essential matter of the upkeep of their roads. Undoubtedly the increased volume of heavy motor traffic has largely increased the cost of upkeep, and the motor vehicle being taxed for road purposes, it almost seems like an improper diversion of funds to apply the sums derived from the petrol tax paid by the owners of heavy vehicles to any other work than that of the maintenance of the roads they use. Most certainly the money derived from the source indicated should be applied in the manner demanded by the road authorities. Beyond

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that, however, we are certainly not inclined to go. It has been calculated that every motor omnibus plying in London contributes an annual sum to the revenue of some £43, apart altogether from the contributions paid to local rates in the districts in which premises belonging to the companies are situated. To still further pile up the load of taxation would amount to an iniquitous impost on an industry which really exists for the benefit of the public. Further, it would be against the general public interest to increase the burden, because it is an absolute certainty that the tax would not be paid by the companies, but by the public themselves in the shape of increased fares.

To Limit the Sphere of the Motor 'Bus.

Another resolution adopted by the Conference was one in favour of investing local authorities with power to define the routes over which motor omnibuses may run and to exercise powers of prohibition over highways which, in the judgment of the authority concerned, are unsuitable for motor 'bus traffic. *Apropos* this resolution, the Clerk to the Teddington District Council warned the Conference against attempting to load motor omnibus companies with disabilities; while the Borough Surveyor of Wimbledon reminded the delegates that in many localities the highway authorities were the owners of the tramways, and it would be hardly fair for them to legislate for the owners of the 'buses. A more cogent argument than is contained in this against giving local authorities the powers they demand it would be difficult to imagine. The L.C.C., for example, would no doubt be in the seventh heaven if only the Government would invest them with power of control over the motor omnibus traffic. On the face of it, it is utterly impossible to concede to these authorities the right of legislation for a form of traffic whose competition they themselves are feeling more keenly than anyone. Even in places where the local authority is not in the position of tramway proprietors it will not do. The Mayor of Richmond, for instance, told the Conference that in Richmond houses were shaken to their foundations, while residents complained that their health had suffered and their property had been damaged by motor omnibus traffic. Now, we are willing to concede that the worthy Mayor spoke in all good faith, sincerely believing that he stated nothing but the precise facts of the case, but surely they are arguable? Doubtless there have been individual complaints, and quite possibly some of them would be capable of substantiation, but certainly not to an extent which would justify the banishment of a useful and beneficial form of traffic from the streets of aristocratic Richmond. Yet that is more than possibly the fate with which it would meet if the Richmond Council were in possession of the powers it desires and, through the votes of its delegates to the Conference, demands. If control and powers of prohibition there must be, then they must be exercised by a single and independent body constituted on the lines of the suggested London Traffic Authority and not by local councils, which might too often be swayed by considerations of opposing trade interests, or of mere unreasoning prejudice. We do not imagine for a single instant that Parliament will consent to the wielding of such powers by detached authorities, but the movement is one which will bear watching by those interested in the future of the motor omnibus or in the larger question of motor traffic as a whole. Once give these authorities power over public service vehicles, and before long they would be seeking further extension of authority over industrial vehicles generally, and there is no knowing where their demands would stop.

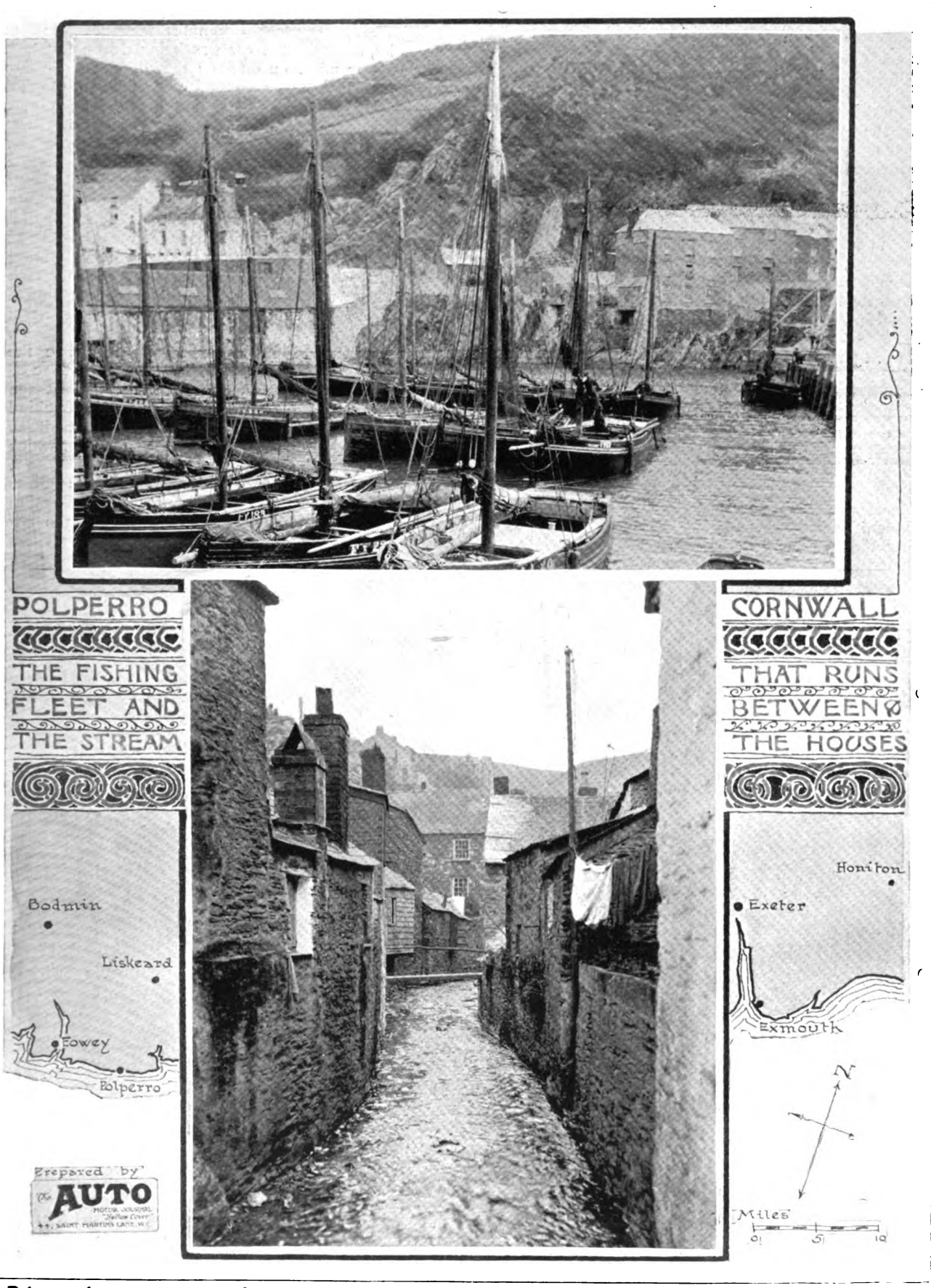
Medical Examination for Drivers?

The death recently of a motor car driver while at the steering-wheel has led to a re-opening of an old discussion on the question of whether or not every applicant for a driving licence should be compelled to undergo a medical examination as to his or her fitness to drive. If we could see that it would in any way help to safeguard the public we should not be inclined to argue against the abstract idea, but we cannot see that any good end is served by allowing too much to be made of the panic feeling engendered in certain types of mind by a solitary example of physical failure in the act of driving. To argue that because one person out of many thousands falls dead under circumstances that might conceivably have spelt disaster, an irksome burden should be imposed upon a whole class is, to our way of thinking, futile and absurd. To follow such an argument to its logical conclusion we should none of us do anything at all involving the slightest risk without being medically certified as being fit to fight for our lives. We have not before us any record of the number of cases of a similar nature to the one that has led to all the discussion, but so far as this country is concerned we should say that there are not six on record. As a matter of fact, we can remember but two, including the one in question, so that the risk of a driver dying at the wheel is certainly not one about which the public need feel unduly alarmed.

Apart from there being no necessity in the public interest to insist upon any such medical examination, we doubt whether the idea is one that could be carried into practical effect without the creation of special and very involved, not to say expensive, machinery. To confine the examination to the time at which the first application for a licence was made would be of very little effect. The human machine may be perfectly sound one day, but on the next some vital defect may manifest itself and render of absolutely no effect the deductions previously made as the result of medical examination. This of necessity means that examination, to be of effect, would have to be periodical—we should probably be asked to submit ourselves to the doctor every time the licence fell due for renewal. It is simply unthinkable that such a scheme could be imposed unless there were shown to be a very pressing public necessity for it, and we submit that a single death while driving does not predicate that necessity, whatever the coroner's jury which enquired into the present case in point may have seen fit to think about it.

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WITH THE CAMERA AND THE CAR.



Polperro, the most picturesque fishing village in South Cornwall. Among its oddities is a stream that runs between the walls of the houses like a Venetian canal.

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MORE RECORDS FOR SUNBEAMS.

SEVERAL more records were captured on Saturday last by the 12–16-h.p. Grand Prix Sunbeam, with Mr. D. Resta and Mr. R. F. Crossman alternately at the wheel, in spite of the fact that misfortune seemed to hang on to the car for eleven hours. A heavy mist overhung the track for the first hour or so after the start, which took place at 5.30 a.m., but in spite of this an even pace of a little short of 80 miles an hour was maintained. Mr. Crossman was the first to take the wheel, and it was most eerie to stand at the control depot and watch him grow out of the mist and then be swallowed up again in a few seconds. Driving at speed was by no means easy, and once Crossman nearly drove down the finishing straight in error. Under these circumstances it was distinctly creditable that 79 miles 387 yards were covered in the first hour. The laps were steadily reeled off at 2 mins. 5 secs., and the time for the first 100 miles was 1 h. 15 m. 42 s. This was slightly slower than the time on the previous Tuesday, but Mr. Coatalen, who is a master of tactics, would allow no hurry. After an hour and a half, Mr. Resta took the wheel, and soon after some trouble was experienced with the magneto. The delay was costly, as although a new magneto was quickly fitted, at 200 miles the car was 10 mins. behind her time of Tuesday. Thereafter for 200 miles the car ran without incident, but still 10 mins. behind record. Then ensued more ignition trouble, this time a cable having chafed against the bonnet until the insulation had been worn through. More valuable minutes were lost, and at 500 miles, although the car was being driven faster, it was nearly 13 mins. outside the record, or 16 miles to the bad. The task now set the car was to run at $3\frac{1}{3}$ miles an hour faster than the 30-h.p. Sunbeam did when it set up the record last year and averaged 75·6 m.p.h. It was a very great deal to ask of a 12–16-h.p. 4-cyl. car, but it stood up to the work gamely. In the eighth hour 2 miles were made up, the next hour saw nearly 6 miles made up, and at the end of the tenth hour the car was only $5\frac{1}{4}$ miles behind. Then, when it seemed that at the eleventh hour the record would be beaten, ensued another most irritating delay. After replenishing with petrol it was found the cap of the tank could not be replaced, probably owing to the thread being burred through an accidental knock. Resta drove three laps without the cap, and then came in, having had enough petrol spray. By this time the cap had been put right, and he was able to continue. Resta stuck to his task grimly, and at ten minutes to five the car was only 77 secs. behind record, while at six minutes past the hour it was level. The first record to fall was that for 900 miles, for which the time was 11 h. 52 m. 3 s., this being 1 m. 33 s. ahead of the world's record. At twelve hours 911 miles 1,738 yards had been covered, an improvement of 3 miles 1,548 yards on the 30-h.p. Sunbeam figures, the last hour yielding $83\frac{1}{2}$ miles. In thirteen hours 987 miles



THE SUNBEAM 12-HOUR AND 1,000-MILE RECORDS.—At the top Resta starting on the last hour and a half, 5 mins. behind record, with instructions to lap at 2 mins., equivalent to about 84 m.p.h. Below, the first change of drivers, Dario Resta replacing R. F. L. Crossman, Mr. Coatalen, in scarf, gives last instructions, while oil and petrol is being replenished. Crossman, on the right, trying to restore warmth to his left hand.

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Not a duel, but killing time during the Sunbeam record breaking at Brooklands on Saturday.—On the left Mr. Coatalen's idea of a way to keep Resta's speed down—but it was only an unloaded air-gun. On the right Mr. R. F. L. Crossman indulges in a little variation of occupation by drilling holes in a tin with the air-gun—loaded.

1,548 yards were crowded, while for 1,000 miles the time was 13 h. 8 m. 25 s., the last-mentioned beating Mr. S. F. Edge's (single-handed driving) five-year-old record with a 60-h.p. Napier by 1 h. 45 m. 50 s. The day's work finished by the light of the rising September moon, Crossman driving the last 12¼ miles in 8½ mins. The average speed during the run worked out to 76·102 m.p.h. In this, as in the previous attempt, Dunlop tyres and Shell motor spirit were used and played their parts well.

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Automobile Golfing Society.

THE Autumn Meeting is to take place on the Cooden Links, Bexhill-on-Sea, by permission of the Cooden Beach Golf Club on Saturday next, October 5th. The competitions will be an 18-hole medal round, for a silver trophy in the morning and a foursome medal round, for prizes presented by the Hon. Secretary and Treasurer, in the afternoon. Full particulars regarding the arrangements can be had from Mr. Hamilton Hobson, 16, Pall Mall, S.W.



UP-TO-DATE ARMY OPERATIONS.—A scene at Horse Heath (the irony of it!), East Anglia, during a council of war, Maj.-Gen. Sir H. S. Rawlinson being seated in the car.

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THE 27·3-H.P. PATHFINDER CAR TRIAL.

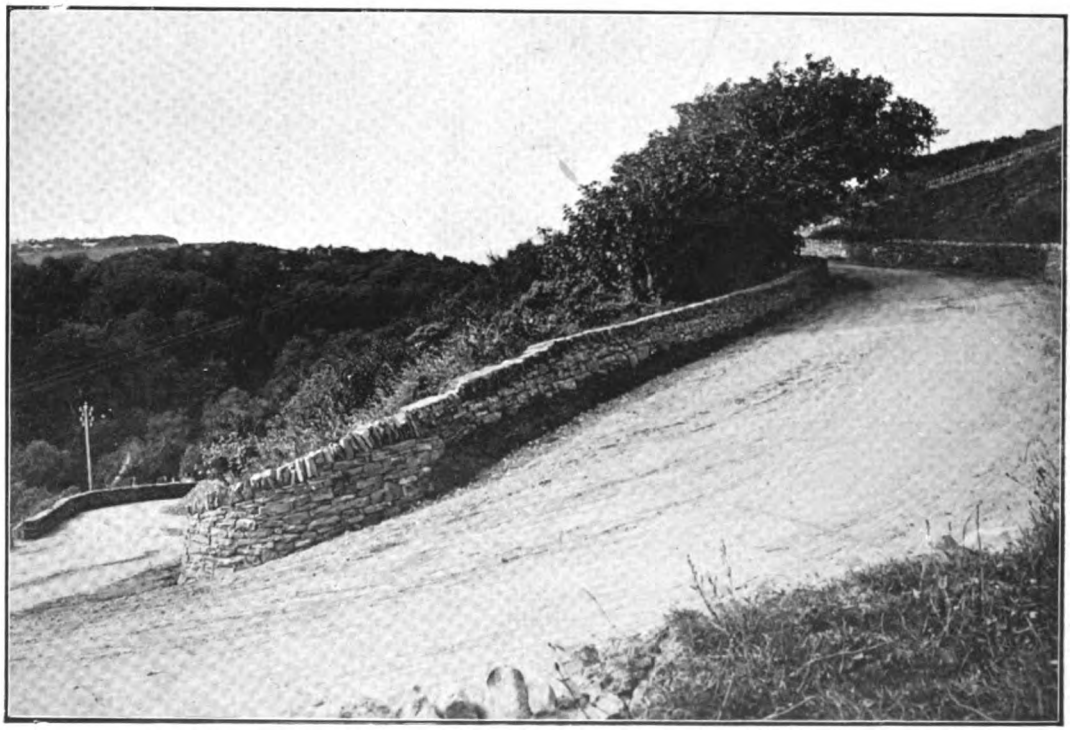
LAST week we were able to publish the bare official results of the trial conducted by the R.A.C. with a 27·3-h.p. Pathfinder car over the Land's End to John o' Groat's course; but a bald statement of facts, such as the official report has of necessity to be, affords but a very meagre idea of the story underlying the accomplishment of the self-imposed task. The difficulties to be overcome, which look so insignificant or are completely unnoticeable on the certificate, the inner meaning of the car's performances *en route*, these are left in a great measure to the imagination of those who have never participated in such a trial as that just successfully concluded by the Pathfinder car.

It should, therefore, be of general interest if we attempt to build up a more or less complete structure of the story on the framework provided by the report already published, laying particular emphasis on such points as appear to us to be most noteworthy and commenting on others not otherwise readily perceptible. The trial, then, was what has come to be known as a "top gear" run, and consisted in driving a 4-*cylinder* 27·3-h.p. Pathfinder car from the doors of the Royal Automobile Club garage in Pall Mall to Land's End, from Land's End to John o' Groat's, thence returning to the starting place, the whole of the distance being covered on top gear.

The car used for this trial was an absolutely standard 4-cyl. chassis, which had undergone no special tuning-up for the occasion, and was fitted with a 4-seated torpedo body of the touring type, with windscreen and mudguards; in fact, just an ordinary model as supplied to customers. Moreover, the machine had already done 7,000 miles or thereabouts on British roads, and its actual performance in the trial may, therefore, be taken as an indication of what every user of a similar model may reasonably expect from his car. Some of the worst weather in what has been one of the worst years in this respect was experienced, and the trial, is moreover, remarkable in that it is, to the best of our memory, the first instance in which other than 6-cylinder cars have attempted a prolonged top gear trial, at least under official observation. One of the objects of having a 6-cylinder engine is, of course, the increased flexibility it is potentially capable of displaying, but from the result of the trial it is apparent that a high degree of this desirable quality in petrol engines is not necessarily confined to those possessing six or more cylinders. Previously it had been thought scarcely possible, if not altogether impossible, for a four-cylinder car, unless geared disproportionately low, to emerge successfully from such an undertaking, but that the Pathfinder was not undergeared is evident from the R.A.C. report, where the top gear ratio is officially given as four to one.

It will also be noticed from the report that the stoppages for adjustments were of a quite minor character, and, equally to the point, were readily effected, while the actual mechanical breakdowns were nil. The average speed, which had to be within legal limit, throughout the trial was 19·6 miles per hour, and the petrol consumption 21·84 miles per gallon, the latter being a distinctly creditable performance, having regard to the, for the most part, heavy state of the roads, the hilly nature of the country traversed, the size of the engine and the running weight of the car, which was 2,975 lbs.

Leaving the R.A.C. garage on the morning of 22nd July, with the Royal Automobile Club representative on board, the car was driven through Brentford—this alone a remarkable performance on top gear for a 4-cylinder car—across Hounslow Heath to Staines, Bagshot, Basingstoke, Whitchurch, Andover, and on to Salisbury, the switchback nature of the road round this district affording an excellent opportunity of showing what the car was capable of doing in climbing hills at speed.



THE PATHFINDER TOP-GEAR TRIAL.—A corner on Berriedale Hill, Going North.

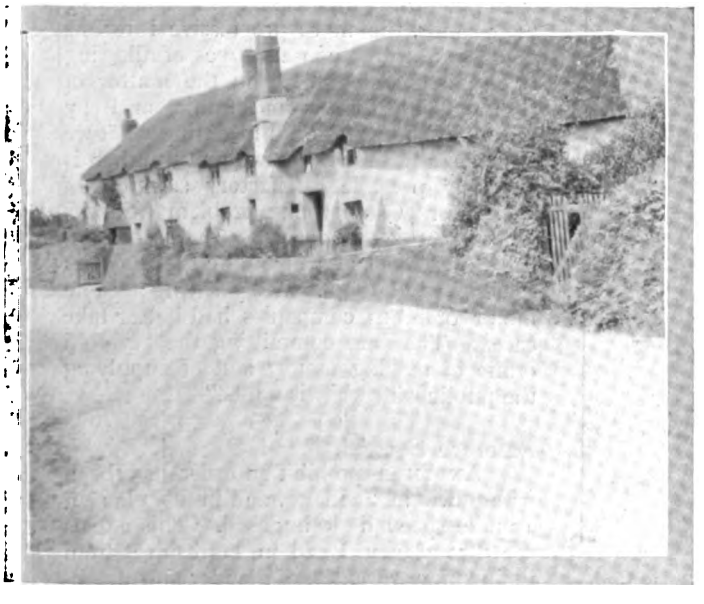
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Then on to Dorset, the well-known, long, steep hill out of Chard, which had just been newly tarred, presenting the first real difficulty so far encountered. Slowly, it is true, but steadily the car forged upwards until at last the top was gained. On to Exeter, over Dartmoor, into Launceston, Bodmin and Camborne, until at last Land's End was reached without further difficulty, and the first stage of the trial was over.

The second stage was begun under quite congenial weather conditions, which, unhappily, were not to last for long. Of those little worries that will befall would-be record breakers of this sort—market days, crowded narrow streets, children using the roadway as a public playground, hills, right-angled turns and *o* bends, cattle, and such like abounding in the west—there is no need to say more than that each and all were successfully overcome as encountered, until Exeter was reached once more. From here the road diverged northwards, through Taunton, Bristol, Gloucester, Tewkesbury, Worcester to Kidderminster, the notorious Shatterford Hill being successfully taken *en route*. Between Warrington and Wigan were many traffic difficulties, but a splendid run on through Preston to Lancaster followed. Then on to Kendal and the famous Shap Fell, which was taken without a sign of falter, followed by the descent on the other side to Penrith, surely one of the most glorious bits of road for the motorist to be found in the whole of the kingdom. Carlisle was soon made, and once left behind it was not a far run to the Scottish Border.

The Grampians in due course appeared in the distance. Miles upon miles of strenuous up-hill work had to be done before the summit was reached. The road surface was what only Highland roads can be after a period of stormy weather. Great stones and deep ruts tried the endurance of the car almost beyond belief, but eventually the top was reached and the engine given breathing time during the ensuing series of "coasts."

Still northward through Inverness, Dingwall, Tain, Bonar Bridge and Helmsdale, till came the renowned Berriedale Hill, which was successfully overcome, followed by an easy—by comparison—run through Wick to the John o' Groat's Hotel.



THE PATHFINDER TOP-GEAR TRIAL.—A typical Devonshire cottage *en route*.



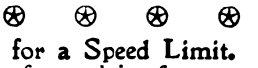
THE PATHFINDER TOP-GEAR TRIAL.—Salisbury for Lunch.

A stay was made here for the night. In the morning a start was made against a howling head wind and pitiless downpour. Small wonder then that what is generally conceded to be the worst side of Berriedale Hill, with the addition of an unfavourable gale into the bargain, should have caused the driver's heart to sink and his hopes of a successful climb to reach a low ebb. And not without cause, for the first attempt resulted in failure. Again and again was the car pluckily put to this seemingly impossible task, and it was not until the seventh attempt that it reached a successful issue. This piece of pluck thoroughly deserved its tardy reward, and the achievement is indeed one to be proud of for all time.

As far as Stirling the same route was taken as on the northward journey, which, except for the wet, was without incident. Thence to Edinburgh and back to London by the usual route, which is probably known to the great majority of our readers.

And so ended the trial of the 27·3-h.p. Pathfinder, which will always be remembered as the first occasion on which a 4-cyl. car covered twice the length of Great Britain—a distance of no less than 1,935 miles—on top gear for every inch of the way.

After the termination of the road portion of the trial, the car was driven down to Brooklands for a speed test, still under official observation, where it accomplished a flying half mile at 55·92 miles per hour, another proof that for a standard touring car the top gear was quite normal.



Putney Asking for a Speed Limit.

As an excuse for applying for a speed limit in Putney High Street and along Putney Bridge, it is stated that during the year ending June 30th last some 203 accidents were caused by motor cars. It is not shown, however, how any of these accidents could have been avoided if a special limit had been in force.

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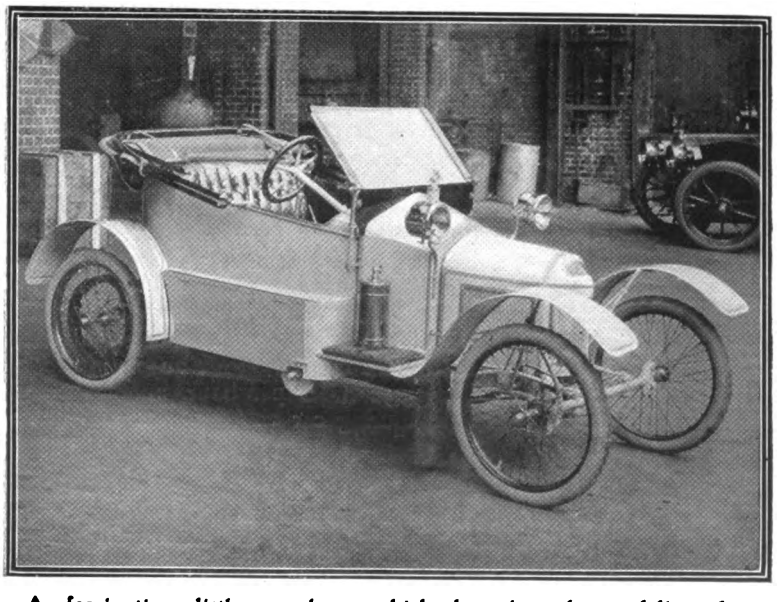
TRAMWAYS AND MOTOR OMNIBUS COMPETITION.

In the light of the existing feeling of disquietude as to the future of the electric tramcar in the London area, it is interesting to study the figures covering the results of the working of the various electric tramway enterprises in different parts of the country. These statistics show that out of 113 undertakings making weekly returns of traffic receipts, excluding London and suburban systems, no less than 57 record a decrease for the past six months, the total decline amounting to £36,000. Including the London systems, the decrease amounts to £100,000, but this is balanced by increased returns from other enterprises totalling approximately £150,000, of which Birmingham accounts for £56,000. A notable feature in connection with these figures is that in places where motor omnibus competition is most severe the tramway systems have suffered most. In a recent issue of the *Daily Mail* there appeared some interesting figures relating to the comparative costs of the two forms of traction, compiled by Mr. A. H. Pott, chief engineer to the Metropolitan Electric Tramways Co., which throw a good deal of light upon the reason underlying the success of the motor omnibus as a competitor with the older form of electric traction. According to Mr. Pott, under existing circumstances the omnibus costs a little more than a half-penny a mile less to run than the electric tram. He estimates capital charges at £7,000 per car for the tramway and £1,350 for the motor omnibus, or for a five-minute service £21,000 per mile for car and £4,000 for the motor omnibus. Accepting these figures as being approximately correct, they throw, as we have said, a lurid light upon the reason why the tramcar does not seem to be able to live in competition with its rival. We have returned to this subject again and again, until we have almost exhausted it, simply because we conceive it to be a duty that we owe to the rate-paying public to oppose by every means the further commitments which the L.C.C. seems determined to force upon London in pursuance of its futile attempt to bolster up what is acknowledged by all but its sponsors to be perilously near to a derelict undertaking. We have mentioned Birmingham, which is one of the few places in which the corporation-owned tramways have shown an upward tendency in their traffic receipts, and yet it is apparent that that city is not too enamoured of any possible extension of the system. A few days ago a committee of the Chamber of Commerce advised the City Council to consider "the probable prospective obsolescence of the present system of overhead traction and the satisfactory alternative to be obtained by a motor omnibus service." The self-same advice might well be taken to heart by the L.C.C., though we doubt that if it were urged upon them with all possible weight of authority it would have the slightest effect. In the matter of its tramways policy, the L.C.C. reminds us most forcibly of the parable of the Gadarene swine.

In connection with this question of competition between the municipally-owned tramway system and the privately-conducted enterprise of the motor omnibus, a singularly good article appeared in last Monday's *Daily Mail* from the pen of Mr. Sydney Brooks, which entirely confirms the view we have all along taken. As he says:

"One can see already the beginnings of a concerted attack by the various metropolitan authorities upon the position of the motor omnibus companies; and the keener the competition grows and the greater the apprehension of the county and borough councillors that they have invested the ratepayers' money in a losing concern, the more steadily will that attack be pressed home. Controlling the streets and imposing taxation, the local authorities have in their hands two powerful weapons with which to defend their tramway systems against all rivals; under the pretence of 'safeguarding the community against the exactions of a private monopoly' they will do what they can either to deprive it of a needed utility or to see that it is furnished in a maimed and inadequate form; and the end of it may easily be either the suppression of the motor omnibus or its capture and appropriation by officialdom."

But before this spoliation and expropriation can take place, Parliament and the community have to be reckoned with, though we are not altogether content to place our trust in either. The former is naturally inclined to listen sympathetically to the views of those who can approach it clothed with some sort of authority, while as for the community at large, it is chiefly remarkable for its apathy towards its own interests. Possibly, now that the tramway-owning municipalities are showing their hands, the more progressive interests may awake to the consequences of allowing them an undisputed say in the matter of the control of roads and traffic, and by serious agitation, succeed in getting what we have already said times without number is the only possible satisfactory solution of the Metropolitan traffic problem from its administrative standpoint. In the meantime, Mr. Brooks tersely and cleverly sums up the whole situation by saying: "The motor omnibus companies had better take care. They are committing the two-fold crime of making money and of supplying the public with what it wants."



A fascinating little runabout which has just been delivered to H.S.H. Prince George of Battenberg by Duo-Cars, Ltd., of York Street, Westminster.

Another Scottish Road Opened.

ANOTHER prohibition order has been withdrawn in Scotland, and in its place a 10-mile speed limit imposed. This affects the Stronslaney Road in Perthshire from its junction with the Callander and Lochearnhead Road at Strathyre Village to a point opposite Ardoch Lodge.

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BROOKLANDS CLOSING MEETING OF THE SEASON.

JUDGING from the list of entries which have been received for the seven events which are down for competition at Brooklands this afternoon, when the last meeting of the season will be held, the racing should form a fitting conclusion to the series of successful gatherings which have taken place in 1912. In three of the events the entries exceed the limit, and those which are beyond the stipulated number are designated "reserves." There will not be a great many of the large cars racing, although Mr. Gordon Watney's 48·6-h.p. Mercedes will be out, as well as a similar car driven by Mr. Charles Stewart, and Mr. M. Campbell's 59·6-h.p. Darracq "Blue Bird." Mr. O. S. Thompson is down to drive his Austin "Pobble" in the Private Competitors' Handicap, and Mr. L. G. Hornsted is to handle this car in the 100-m.p.h. Short Handicap, and is a reserve in the Sprint Handicap. One of the most interesting items of the programme is the race for the O'Gorman trophy, and although the field is not very large, each of the cars entered should put up a good fight. In addition to the track events there will be the usual aeroplane handicap. The entries are :—

2 p.m.—The September Private Competitors' Handicap.

About 5¾ miles. Prizes: Cups value £20, £12 10s., £7 10s.

W. R. McBain (15·9-h.p. Delage)
L. J. Cadbury (20·1-h.p. Vauxhall)
McL. N. Staight (15·9-h.p. S.C.A.R. "Maraquita")
O. D. Pollak (15·9-h.p. S.C.A.R. "Mud")
S. J. B. Lacon (25·8-h.p. Bedford)
C. A. Bird (15·9-h.p. Sunbeam)
M. Campbell (59·6-h.p. Darracq)
E. T. Newton-Clare (9-h.p. Lion Peugeot)
W. S. Newton-Clare (8·9-h.p. Sizaire)
Lord Exmouth (15·9-h.p. Hispano Suiza)
O. S. Thompson (36·1-h.p. Austin "Pobble")
Eric Horniman (15·9-h.p. Gregoire)
Charles Stewart (48·6-h.p. Mercedes)
Hon. R. Beckett (25·6-h.p. Humber)

2.25 p.m.—The Twelfth Short Motor Cycle Handicap.

About 5¾ miles. Prizes: £10, £5, £3, or Cups at option. For all classes of motor bicycles.

G. Roberts (Rudge)
R. L. Keller (Triumph)
G. E. Stanley (Singer)
J. Cocker (Singer)
J. A. Manners-Smith (Triumph)
H. H. Square (Robin-Minerva)
D. Lavender (Rudge)
B. C. Remington (Matchless*)
Sydney Hall (Rudge)
L. Hill (Rudge)
W. H. Elce (Rudge)
F. Bateman (Rudge)
W. Stanhope-Spencer (Rudge)
E. W. Russel (Rover)
A. G. Walker (Rudge)
Harry Martin (Martin*)
Harry Martin (Martin)
F. A. McNab (Douglas*)
F. H. Arnott (Rudge)
F. H. Arnott (J.A.P.*)
Clifford Pressland (Rudge)
S. F. Garrett (Green Precision)
W. Jacobs (Singer)
S. L. Bailey (Douglas*)
J. P. Le Grand (Singer)

* Twin-cylinder.

2.50 p.m.—The Fourth Race for the O'Gorman Trophy.

About 28 miles. Additional prizes: Cups value £20, £10, £5.

A. J. Hancock (20·1-h.p. Vauxhall)
P. Lambert (20·1-h.p. Vauxhall)
R. S. Witchell (18·8-h.p. Straker-Squire)
C. L. E. Geach (15·9-h.p. Singer)
G. Tysoe (15·9-h.p. Singer)
C. Bianchi (15·6-h.p. Crossley)
H. C. Lambert (15·9-h.p. Crossley)
H. M. Bowden (13·9-h.p. F.A.B.)
H. M. Bowden (13·9-h.p. F.A.B.)
H. M. Bowden (13·9-h.p. Vivinus)

3.30 p.m.—The Ninth 70 m.p.h. Short Handicap.

About 3¼ miles. Prizes: Cups value £20, £10, £5.

L. J. Cadbury (20·1-h.p. Vauxhall)
R. Winn (22·4-h.p. Ford)
H. Perrot (15·9-h.p. Argyll)
McL. N. Staight (15·9-h.p. S.C.A.R. "Maraquita")
E. T. Newton-Clare (9-h.p. Lion Peugeot)
H. J. Dew (13·9-h.p. Oryx)
W. T. Smith (13·9-h.p. Stoewer)
S. Cummings (15·9-h.p. S.C.A.R.)
M. Campbell (24·8-h.p. Darracq)
C. Engley (24·8-h.p. Turcat-Mery)
T. Andre (8·9-h.p. Marlborough)
H. M. Bowden (13·9-h.p. F.A.B.)
J. W. Austin (22·4-h.p. Ford)
O. D. Pollak (15·9-h.p. S.C.A.R. "Mud")
C. A. G. O'Malley (11·5-h.p. M.A.F.)
H. C. Lambert (15·9-h.p. Crossley)
F. E. Wasling (22·4-h.p. Ford)
Reserves—
A. Bovier (16·9-h.p. Schneider)
H. M. Bowden (13·9-h.p. Vivinus)

3.55 p.m.—The Ninth 100 m.p.h. Short Handicap.

About 5¾ miles. Prizes: Cups value £35, £20, £15.

C. L. E. Geach (15·9-h.p. Singer)
G. Tysoe (15·9-h.p. Singer)
R. Robertson-Shersby-Harvie (30-h.p. Rolland-Pillain)
N. S. Hind (35·7-h.p. Berliet)
S. J. B. Lacon (15·9-h.p. Gregoire)
C. A. Bird (15·9-h.p. Sunbeam)
Percy Lambert (20·1-h.p. Vauxhall)
M. Campbell (59·6-h.p. Darracq "Blue Bird")
F. W. Brown (48·6-h.p. Mercedes)
Lord Exmouth (24·8-h.p. Komnick)
L. G. Hornsted (36·1-h.p. Austin "Pobble")
R. S. Witchell (18·8-h.p. Straker-Squire)
Reserve—
A. Bovier (16·9-h.p. Schneider)

4.20 p.m.—The Eighth 70 m.p.h. Long Handicap.

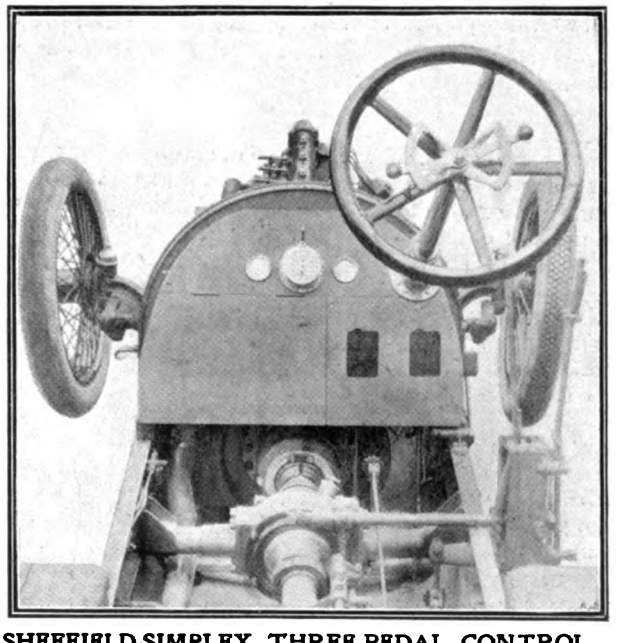
About 8½ miles. Prizes: Cups value £25, £12 10s., £5.

W. Croote (15·9-h.p. Delage)
McL. N. Staight (15·9-h.p. S.C.A.R. "Maraquita")
H. Perrot (15·9-h.p. Argyll)
E. T. Newton-Clare (9-h.p. Lion Peugeot)
S. Cummings (15·9-h.p. S.C.A.R.)
H. J. Dew (13·9-h.p. Oryx)
W. Turner Smith (13·9-h.p. Stoewer)
O. D. Pollak (15·9-h.p. S.C.A.R. "Mud")
F. Weber (11·5-h.p. M.A.F.)
C. R. Engley (24·8-h.p. Turcat-Mery)
T. B. Andre (8·9-h.p. Marlborough)
H. C. Lambert (15·9-h.p. Crossley)
F. E. Wasling (22·4-h.p. Ford)
A. Bovier (16·9-h.p. Schneider)
H. M. Bowden (13·9-h.p. F.A.B.)
H. M. Bowden (13·9-h.p. Vivinus)
Hon. R. Beckett (25·6-h.p. Humber)

4.45 p.m.—The September Sprint Handicap.

About 2 miles. Prizes: Cups value £30, £15, £7 10s.

W. R. McBain (15·9-h.p. Delage)
C. L. E. Geach (15·9-h.p. Singer)
G. Tysoe (15·9-h.p. Singer)
N. S. Hind (35·7-h.p. Berliet)
R. Winn (22·4-h.p. Ford)
McL. N. Staight (15·9-h.p. S.C.A.R. "Maraquita")
O. D. Pollak (15·9-h.p. S.C.A.R. "Mud")
S. J. B. Lacon (15·9-h.p. Gregoire)
C. A. Bird (15·9-h.p. Sunbeam)
Percy Lambert (20·1-h.p. Vauxhall)
F. W. Brown (48·6-h.p. Mercedes)
M. Campbell (24·8-h.p. Darracq)
Reserves—
L. G. Hornsted (36·1-h.p. Austin "Pobble")
Lord Exmouth (24·8-h.p. Komnick)
R. S. Witchell (18·8-h.p. Straker-Squire)

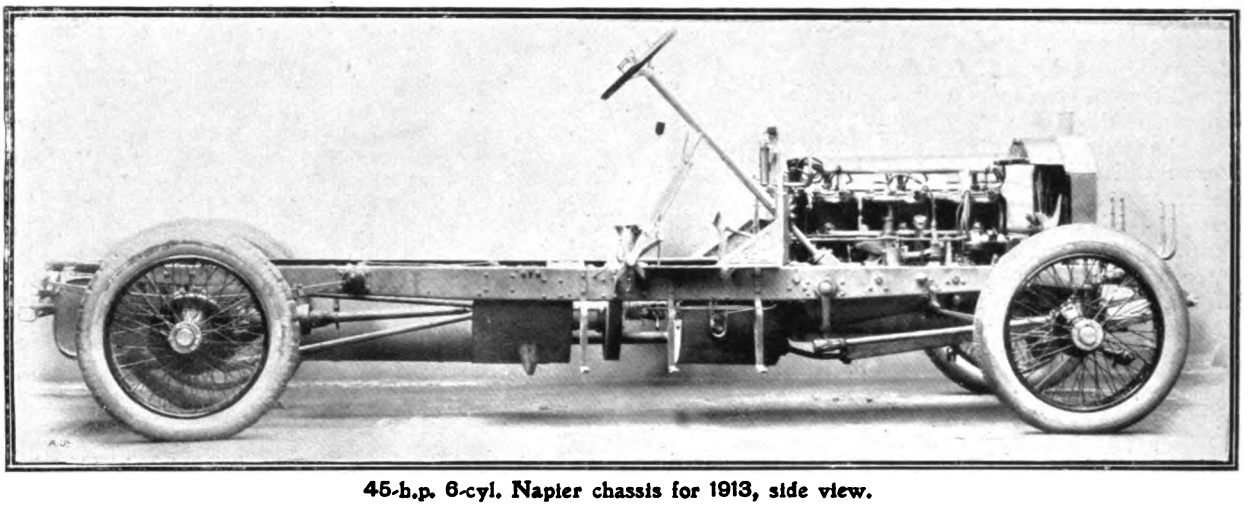


SHEFFIELD-SIMPLEX THREE-PEDAL CONTROL.—The above photograph is of special interest because it shows a very important change in the Sheffield-Simplex cars for 1913. Hitherto it will be remembered they have always been provided with a single-pedal control, but now they have been fitted with the standard system, which will doubtless bring them may new adherents.

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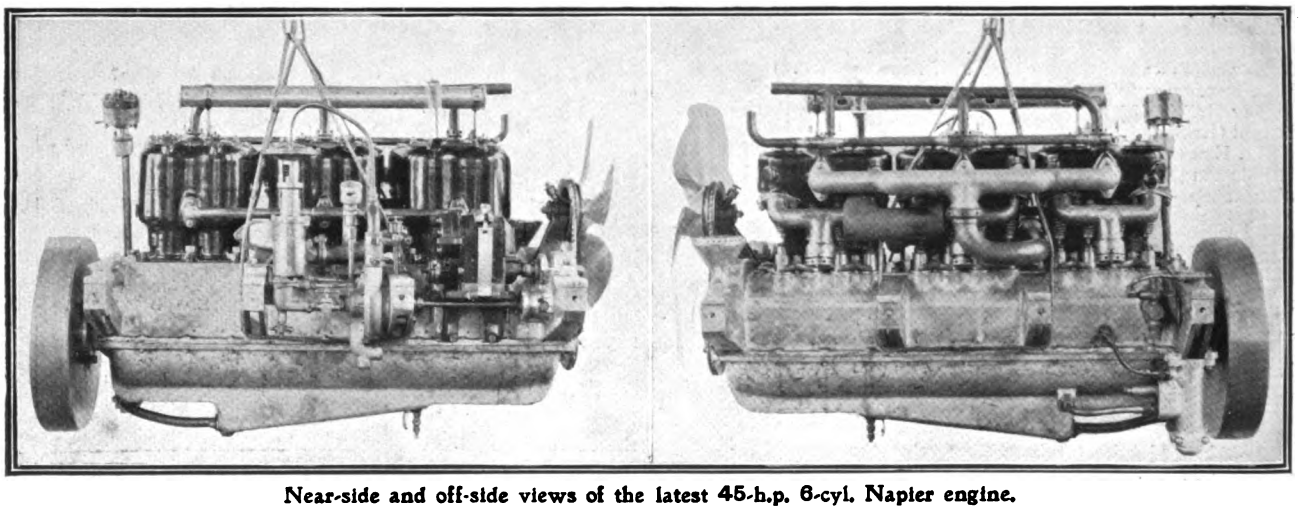
THE 45-H.P. 6-CYL. NAPIER CHASSIS FOR 1913.

THE set of photographs which we publish are of the first of the 1913 models of the 45-h.p. 6-cylinder Napier chassis which Messrs. S. F. Edge, Ltd., are now showing at 14, New Burlington Street. If these illustrations are compared with those that appeared in the AUTO. of April 13th of this year, when we gave our readers a detailed description of the 1912 model of this car, it will be found that the makers have acted wisely in not altering the design simply for the sake of alteration, as is so often done, but making such changes only where real improvement could be effected with advantage.



45-h.p. 6-cyl. Napier chassis for 1913, side view.

Looking at the illustration of the complete chassis we find that the perfectly flat and rectangular shape of the pressed steel frame has been retained, also the diagonal cross-bracing of the rectangle formed in the space between the two cross girders immediately behind the gear-box.



Near-side and off-side views of the latest 45-h.p. 6-cyl. Napier engine.

The chief alteration, however, and one which we do not hesitate calling a valuable improvement, consists in the lengthening of the whole chassis so that the wheel base has been increased by 4 ins. to 11 ft. 6 ins. Additional body space is thereby provided with the advantage that the load can be kept within the limits of the wheels, and very spacious bodies can be fitted without overhang. Greater steadiness of running is secured thereby and the comfort of the passengers occupying the rear seats improved considerably.

In the new model the steering column has been made so that it can be raked to suit the purchaser's requirements according to whether the chassis is intended to be fitted with a low torpedo body or a landaulette, or whether a short or a tall man will drive the car. For this purpose the column can be pivoted from a point at its base and secured to a bracket fixed to the aluminium dashboard through which the column is free to pass; a variation of 5 ins. in the height of the steering wheel is made possible by this arrangement. The steering box proper is also improved to some extent, and an entirely new pattern is used in the 1913 models. Steering is effected by worm and segment gear, every part of which is adjustable for wear, and ample means for lubrication are provided wherever necessary. The side-steering rod is now carried to the lever on the pivot above the front axle, where it is better protected from injury on rough roads than in its former position below the axle.

This alteration has been effected chiefly on account of the increased flexibility of the front springs which, in the

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1913 model, have a considerably increased range of movement. It is interesting to note that Messrs. Napier are one of the few motor manufacturers who still retain the position of the steering tie-rod in front of the axle instead of its almost universally adopted position behind the latter. Our readers will remember the discussion that was carried on over the best position of this important member of the steering-gear some few years ago, when Messrs. Napier were the chief advocates of its position in front of the axle. The reasons which then caused them to place the rod in front still hold good, and we find in the 1913 models this rod in the same position as in the models of four years ago. This point in itself may be of minor importance, but it goes to show that everything in the Napier works is done with a purpose, and for some well thought out reason, and not just because other people are doing it.

As the 45-h.p. Napier is chiefly intended to carry luxurious bodywork the matter of suspension has received a considerable amount of care. Half-elliptic springs of great length are used in front, and the rear axle is suspended on two very long semi-elliptic springs, the rear ends of which are hung on shackles from an inverted half-elliptic cross spring. Whenever the makers are informed what type of bodywork it is intended to fit to the chassis, they build up suitable springs for the weight the chassis will have to carry when the car is completed. In addition to the springs, Napier road equalisers are fitted to both axles to prevent any violent rebound resulting from striking a stone or going over a hole in the road at high speed.

From the two illustrations, showing both sides of the engine, it will be gathered that no vital alterations have been made in its design. As before, the cylinders are cast in pairs, and their internal dimensions, 4 ins. bore by 5 ins. stroke, remain unaltered. The R.A.C. rating of the car therefore is 38·4-h.p. Not the least noteworthy feature of this engine is that it is supported in the main frame by no less than eight lugs, which are cast integral with the upper half of the crank-case. A very rigid foundation and perfect alignment under all conditions is thereby assured.

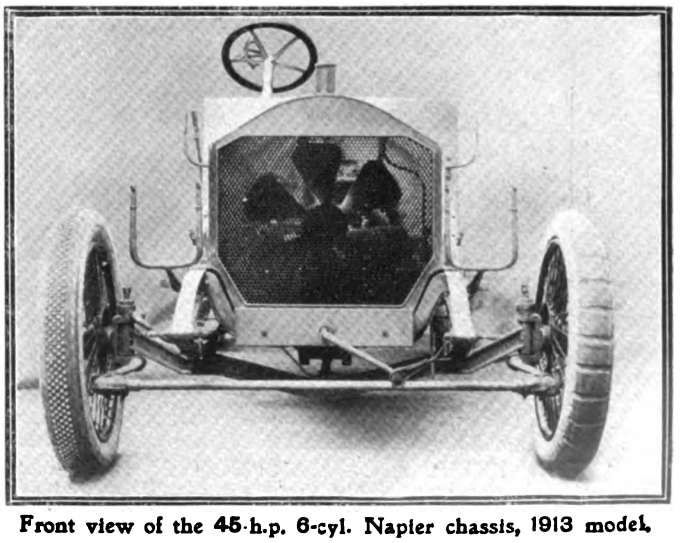
The engine is cooled by forced water circulation, and a large rotary pump, clearly seen in the off-side view of the engine, is employed for this purpose. The Napier controllable carburettor, with hydraulic air regulator, on which we have commented on previous occasions, has been retained on account of its economy and all round efficiency.

Two entirely independent and separate ignition systems are fitted, as in previous models. A Bosch magneto of the very latest type, known as the "Z enclosed," for which it is claimed that neither dust nor moisture can adversely affect its function, is provided in addition to the well-known Napier synchronised ignition, which, however, has been modified to some considerable extent in the new model. The H.T. distributor and low-tension make-and-break of the latter system are both situated in the little circular box seen at the top of the column that is clearly shown in the near-side view of the engine at the rear end. This box is only 3 ins. high by 3½ ins. in diameter, and contains the whole of the current output apparatus. The top of the case consists of a vulcanite block, from terminals on which the H.T. wires lead to the sparking-plugs through an aluminium tube, seen running along over the top of the engine. The distributor consists of a revolving carbon brush wiping on metallic segments; the position of each segment is marked and numbered on the outside of the distributor-case, so that no difficulty will be experienced in connecting up the wires after, for one reason or another, it has been found necessary to take them off. The distributor is driven by skew gear from the rear end of the cam-shaft through a steel spindle running in an aluminium case which is bolted to the crank-case. This new synchroniser constitutes a considerable advance on the previous model. It is much more compact, has fewer working parts, and, in addition, is more accessible.

No alterations have been found necessary in connection with the lubricating system, which has proved itself to be absolutely dependable under all conditions. It will be remembered that all bearings are lubricated under pressure from a pump in the base chamber, the oil pressure can be regulated by means of an adjustable by-pass-valve, so that oils of various grades can be used on the car according to the climatic conditions of the country in which the car is used. The large funnel shaped oil filler on the foremost near-side engine lug is by no means the least important feature of the system, and we feel sure will be much appreciated by chauffeurs on account of its accessibility and large size.

Pressure is supplied to the petrol tank by a little plunger pump, which is seen in the same illustration just in front of the rearmost engine lug, and which supplies fresh air to the tank. The inlet valve of this little air-pump is suitably protected by a very fine gauze so as to prevent dust or other small objects liable to choke the jet or petrol pipe from reaching the tank.

The front view of the chassis shows that the well-known Napier shape of the radiator has been retained. The clearance of the front axle is increased slightly, and another, if less important point, to which we should like to draw attention is the way of holding the lamp brackets to the side of the frame; drilling the top part of the frame that carries most of the load has thereby been avoided. It will also be noticed that wherever necessary screw-down greasers have been fitted throughout the chassis, and strainers and filters are contained in both petrol and oil supply systems. As before, the dashboard is a solid aluminium slab, and it should be noted that in the new model the bonnet has also been made of aluminium, which makes it very easy to handle on account of its lightness. Our readers will, very shortly now, have an opportunity of inspecting this chassis for themselves at the forthcoming Olympia Show.



Front view of the 45-h.p. 6-cyl. Napier chassis, 1913 model.

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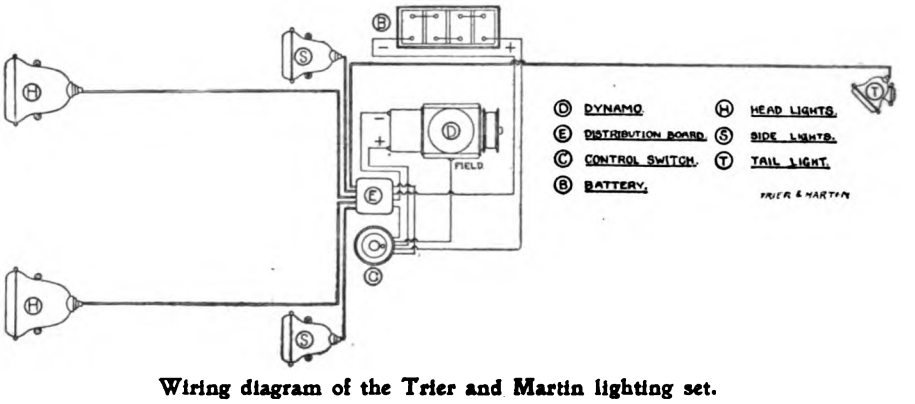
DYNAMO LIGHTING SETS.—III.

THE TRIER AND MARTIN.

AMONG the improvements that have been effected in the Trier and Martin set during the last twelve months, probably the most valuable is the reduction of the necessary running speed of this well-tried machine. In the standard 12-volt model, the cut-out mechanism makes contact at about 550 r.p.m., and the maximum output is reached at about 1,200 r.p.m. It is clear from these figures that the gear-ratio of the drive may be smaller than is usual, thus saving wear not only on the driving components themselves, but on the bearings of the armature.

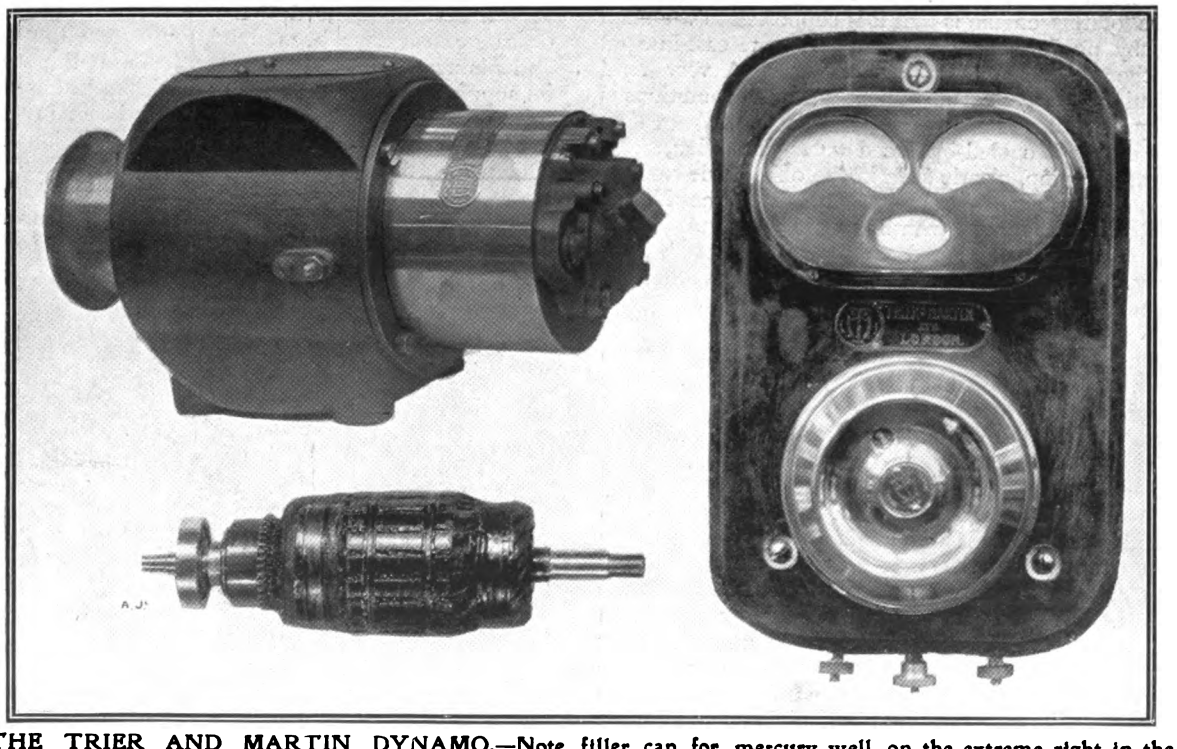
In distinction to common design, both the output-control and the automatic cut-out are self-contained in the enclosed casing of the dynamo, the total weight of which complete is 28 lbs.

The armature is of the drum-wound type, the commutator being fitted with two segments for each pole of the armature. Four brushes—two main and two auxiliary — rub on these segments. The two extra brushes are situated and connected with the main brushes so that at slow speeds they intensify the field flux, thus increasing the current production of the armature, while at high speeds part of the main current is made to pass from them direct to the outer circuit. So efficient is this method of output control that, according to the curve published by the makers, the output neither rises nor falls at any increased speed once the maximum is reached. The 11 amps. at 12 volts given by the type A machine is considered sufficient to provide all the current required for the lamps at full load, and leaves, in addition, a small margin for charging the battery. It is, therefore, unnecessary to take thought for keeping the battery charged by daylight running, as there should always be ample current in hand for the usual short night stops.



Wiring diagram of the Trier and Martin lighting set.

The cut-out is of the most original design, and in order to follow the description we would refer readers to the accompanying sketch. On the end of the armature-spindle is a small metal disc, the bottom portion of the periphery of which runs in a little bath of mercury. As the disc revolves it draws the mercury across its bath and tends to bank it up on one side. This process goes



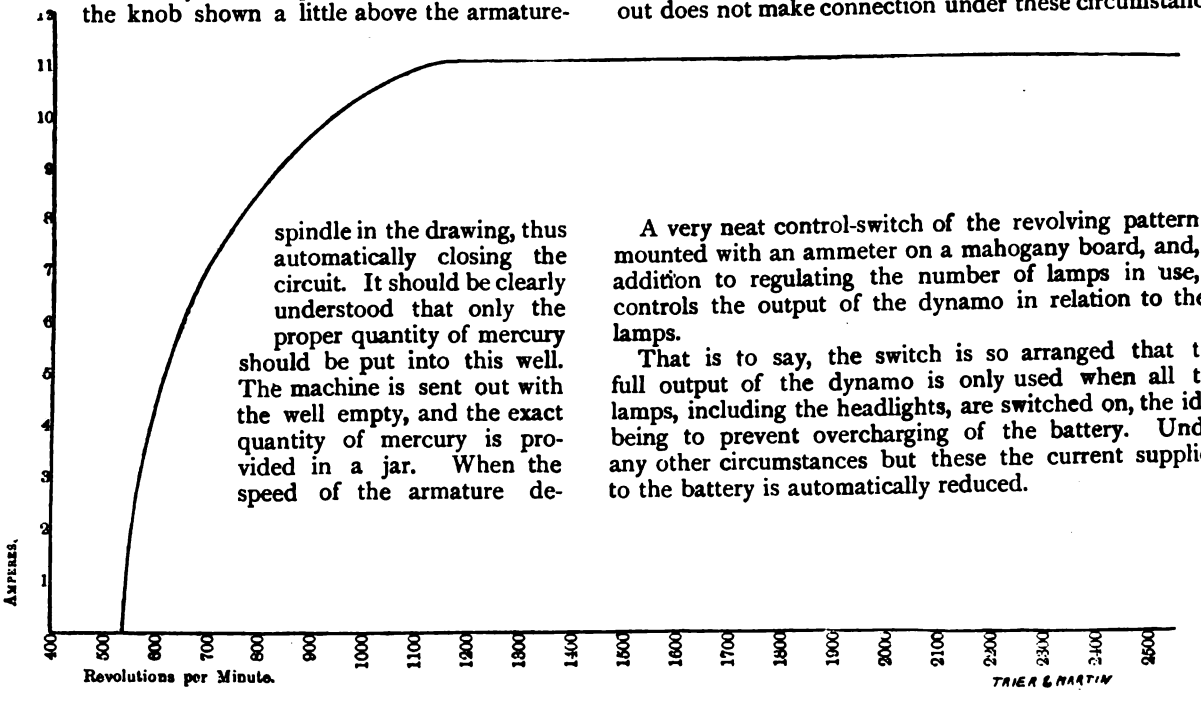
THE TRIER AND MARTIN DYNAMO.—Note filler cap for mercury well on the extreme right in the top left photograph. On the right the Trier and Martin switchboard. The switch is at No. 1 position, *i.e.*, connected for charging the accumulator with none of the lights turned on. Below is seen the armature.

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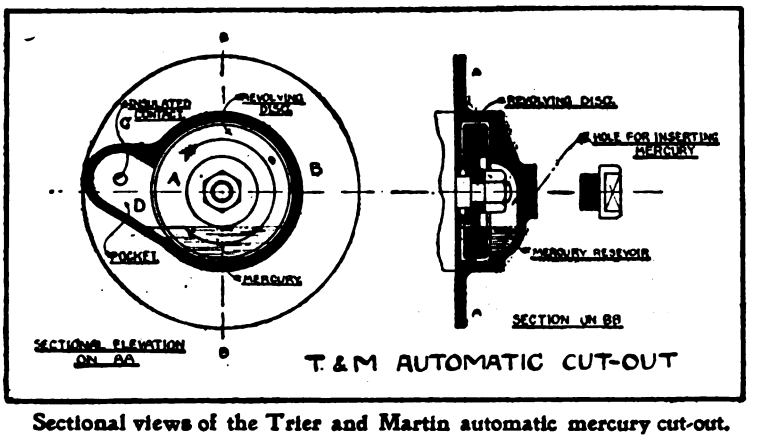
on until the armature speed is reached, at which the makers consider the dynamo may safely be connected to the battery, by which time the mercury has been sufficiently drawn up to make contact with the knob shown a little above the armature-spindle in the drawing, thus automatically closing the circuit. It should be clearly understood that only the proper quantity of mercury should be put into this well. The machine is sent out with the well empty, and the exact quantity of mercury is provided in a jar. When the speed of the armature decreases the mercury falls back and breaks the connection. Should the dynamo be driven from the propeller-shaft or gear-box instead of the engine, no ill-effects accrue when the car is reversed, as the mercury cut-out does not make connection under these circumstances.

A very neat control-switch of the revolving pattern is mounted with an ammeter on a mahogany board, and, in addition to regulating the number of lamps in use, it controls the output of the dynamo in relation to these lamps.

That is to say, the switch is so arranged that the full output of the dynamo is only used when all the lamps, including the headlights, are switched on, the idea being to prevent overcharging of the battery. Under any other circumstances but these the current supplied to the battery is automatically reduced.



Output curve of the model "A" Trier and Martin dynamo as supplied by makers.



Sectional views of the Trier and Martin automatic mercury cut-out.

A distribution-board is used to which all the lamps are directly connected, and which draws its current direct from the switch-board. The weight of the switchboard is 2 lbs. 8 ozs.

Specially constructed batteries are used, the positive plates being of the unpasted Planté type. They are carefully designed to stand continuous heavy charge and discharge, and also vibration. Special 4-volt contacts are provided on the battery-box for dashboard or interior illumination. The total weight of the 12-volt 40-amp. hour battery, which will give a continuous discharge of 4 amps. for ten hours, is 48 lbs. ready filled and charged.

Messrs. Trier and Martin's address is 115, Great Portland Street, W.

Lectures at London University.

FOLLOWING the success which attended the lectures last year, a course of ten lectures on Internal Combustion Engines (petrol and kerosene) has been arranged by the Faculty of Engineering of King's College, London. Mr. G. A. Burls will again be the lecturer, and the course will commence on Thursday, October 10th, and be continued on the following Thursdays. The lectures will be fully illustrated by lantern slides, and in connection with them there will be drawing and design classes on Thursday afternoon, and laboratory classes on Tuesdays. The fee for the lecture course is one guinea; for the drawing and design and laboratory classes two guineas each, while the composition fee for the whole course is four guineas.

Motors at the Barcelona Exhibition.

ONE of the special features of the International Exhibition at Barcelona, to be opened by the King of Spain in January next, is to be an Automobile and Aviation Salon under the patronage of the Royal Automobile Club of Spain.

It is also proposed to organise an aviation meeting in connection with the Exhibition. It is understood that, apart from being a means of introducing goods to the attention of Spanish buyers, the Exhibition should form means of getting in touch with leading South American firms, most of whom will have representatives at the Exhibition, which will remain open till April. Particulars can be had from the Commissioners' Delegate, 76, Finsbury Pavement, E.C.

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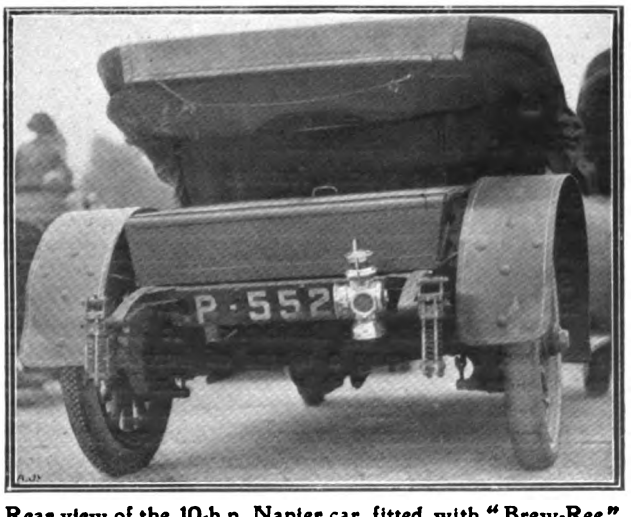
AN EFFICIENT SHOCK ABSORBER.

FOLLOWING an invitation of Messrs. Brew and Reeves of 330, Kennington Road, London, S.E., we recently availed ourselves of an opportunity for testing the effects of their "Brew-Ree" shock absorbers on the running of a car under ordinary conditions of service. For this purpose a 10-h.p. Napier car was placed at our disposal, and after using it for a number of calls about town we finally travelled to Brooklands and back.

Most of our readers will doubtless remember that the two-cylinder 10-h.p. Napier of 1910 is fitted with semi-elliptic springs throughout.

The car which we used on this occasion had been built to carry a rather heavy enclosed two-seater body, and the springs, of course, were adapted to the load the chassis was intended for originally. The heavy enclosed body, however, had been replaced a short time ago by an open two-seater of considerably lighter weight, with the result that the springs, which formerly had not given any reason for complaint, proved too hard and bumpy owing to the much reduced weight. To remedy this drawback "Brew-Ree" shock absorbers were fitted to the rear springs and the result not only justified the small expense entailed by it, but it produced an effect in the running of the car that to us is interesting in many ways.

As we know the roads to Weybridge to have, on the whole, an excellent surface, and so afford comparatively little opportunity to notice any effect of a shock absorber on the smoothness of running, we selected a somewhat roundabout route to get there, and first of all took the car through some of the side streets of which the authority in charge of the maintenance of the roads in London has no reason to be proud. Quite a collection of roads of this kind is to be found in the square formed by Portman Place, Marylebone Road, Edgware Road and Oxford Street, and we selected some of the back streets of this neighbourhood for our way out of town. These roads have but one advantage, they are fairly free from traffic, mainly, of course, owing to their abominable surface. We were therefore enabled to have the car driven at various speeds from less than 10 m.p.h. up to and above the legal limit. During the whole time the suspension was all that could be expected under the circumstances. Ordinary pot holes were hardly noticeable at speeds above 10 m.p.h., and some of the extraordinary holes, of which, by the way, there were more than we had anticipated, did not make us feel uncomfortable. There was none of the "being-lifted-off-your-seat-and-come-down-with-a-bang" business, although, it will be remembered, that the car has but a short wheel base, and carried a comparatively light two-seater body. The beneficial effect of the shock absorbers showed itself so plainly that we could feel a distinct difference between the suspension of the two axles. All the shocks which made themselves felt to some extent came from the front axle, which had the original springs without shock absorbers, while the rear-suspension, which had been equipped with "Brew-Rees," behaved in a manner likely to satisfy the most exacting requirements.



Rear view of the 10-h.p. Napier car, fitted with "Brew-Ree" shock absorbers, which we used on our test run.

Arrived at the track we examined the suspension of the car generally and the shock absorbers in particular, because the difference in the springing of the two axles had become very marked, especially during the last part of our test which included some of the "bumpiest" places on the track. From the brief description of these shock absorbers, which appeared in the AUTO. as recently as August 24th, our readers will doubtless remember that they are of the elastic shackle type, and as such should be classed under auxiliary springs rather than amongst shock absorbers proper. As, however, the effect on the suspension of the car, or rather on the comfort of the passengers is very much the same as that of a really first-class shock absorber, we will for the purpose of this description use this more easily understood term. The device consists in the main of a pair of U-bolts hinged to the upper part of the spring, and passing through a guide-piece bolted to the lower half of the suspension. Two concentric spiral springs are interposed between the bottom plate, held by the lower ends of the U-bolts and the top plate formed by the guide-piece. The inner and weaker of these springs is slightly shorter than the outer and much stronger spring, which latter is calculated to sustain the dead load, that is to say, the permanent load formed by the chassis and bodywork, and it can be adjusted to a nicety by means of the four nuts at the lower ends of the U-bolts. The inner and weaker spring is intended to account for the extra load formed by passengers, luggage, or whatever the car is intended to carry. The effect of the combination of two springs of different strength is a very smooth and progressive action of the shock-absorbers. It will make the car ride smoothly under any circumstances whether there are passengers on the rear seats or not; this, to our mind, is an advantage to be found in but very few of the numerous auxiliary springs that have been placed on the market during the last two years. We are all the more pleased to give the "Brew-Ree" credit for this excellent quality because it is entirely British made. Its price compares favourably with other devices of the kind.

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Motors for Municipal Work.

As a result of eighteen months working of a steam wagon, the Borough Engineer of Kensington has reported that it shows a financial advantage of over £114 as compared with horse traction. In his report he also quotes the experience of Westminster, where in 1910 it was found that one motor and trailer could do the work for which six horses were formerly required, this resulting in a saving of £270, a figure which, of course, could be improved on to-day.

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MOTOR CYCLE MATTERS.

By "CASTOR."

Waterproof Magnetos.

IT will be remembered that the judges, at the conclusion of the last A.C.U. Six-days' Trials, commented in a not altogether favourable manner on the behaviour of what they were pleased to describe as "the so-called waterproof magneto," and suggested that further improvements are needed before the claim in this respect is thoroughly justified.

Following upon this report appeared a contribution in a recent issue of this journal, from Mr. Victor Hart, which, while laying great stress upon the thanks due to magneto manufacturers by all motor cyclists for the present state of perfection of this "tiny ignition equipment," also commented somewhat adversely upon its absolute waterproofness.

With the sentiments expressed in the first part of Mr. Victor Hart's contribution I am in complete accord, as are, I am sure, the majority of those riders whose experience dates back to the days of the coil and accumulator system of ignition; with regard to the second part, however, I am glad to say my own experience leads me to a contrary, or at least a modified opinion. I am not by any means a mere fair weather rider—seldom does rain or mud deter me from doing all my travelling by the aid of my trusty iron steed; indeed, many a time do I set out voluntarily to brave the elements when they are in their very worst mood, merely for the enjoyment I am able to derive therefrom. This being so, I feel all the more privileged to state that it is still more seldom that my own waterproof magneto has caused me an instant's delay. True, I have on occasion found that the wet has been responsible for misfiring, or, stated more correctly, I have sometimes been unable to start the machine after it has been standing in the rain what time I took temporary shelter, but, and in every case without exception is this true, by wiping the H.T. cable and spark plug terminal with a dry handkerchief, the trouble has disappeared.

This fact appears to me to lead to the inevitable conclusion that the shorting causing the misfiring is external, that is to say, the current has leaked from the plug terminal to the body of the magneto *via* the film of water on the H.T. cable, and is therefore in no way attributable to any shortcomings on the part of the magneto machine itself in respect to its waterproof qualities. Of course, my experience may not be that of all other users, and I should be glad to hear what readers have to say in this matter. There is one point, however, to which I would like to draw their attention—the necessity, which has been emphasised more than once by the makers in the columns of the Press, of coating the end of the H.T. cable with paraffin wax before its attachment to the magneto terminal. On my own machine this has been done—except that I used a melted tallow candle for the purpose in lieu of wax—and it would be instructive to hear whether any of those riders whose magnetos have failed by reason of wet weather, have previously taken the precaution of complying with these instructions.

Strangely enough, within a few hours of penning the above, a letter was received by my Editor from the Bosch Magneto Co., in which they rightly, it seems to me, take exception to some of our contributor's remarks and incidentally bear out my own theory that trouble from wet with the type of magneto at present under discussion is usually, if not always, the result of external short circuits. As I believe it well to emphasize this point, and in justice to the firm in question, I quote the following extracts from the letter before me:—

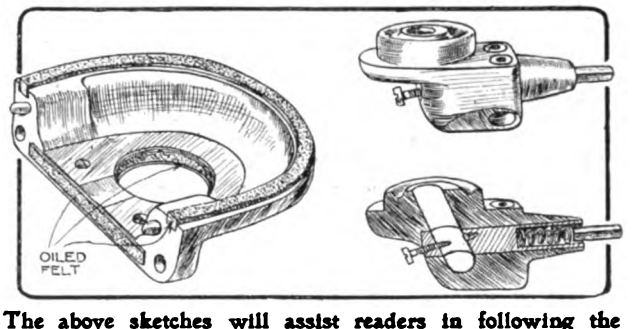
"Certainly at the 1911 Show the Bosch Magneto Co. exhibited the new watertight magneto in which aluminium plates are used. Mr. Hart states that he is satisfied that rain can reach the interior of the magneto, and that water gets down between the edges of the magnets and the aluminium plates, owing to the fact that these plates do not sufficiently lap across the ends of the magnets. He states that the obvious remedy is to insert a narrow leather fillet where the edges of the plates abut against the magnets. On this point it may interest Mr. Hart to know that the very first watertight magneto ever exhibited had the edges of the magnets perfectly ground so as to present a positively even surface, and that the aluminium plate which fits on the edge of the magneto has, from the first, been fitted with a groove filled up solid with oiled felt, the oiled felt projecting slightly beyond the surface of the aluminium plate, and making not only a watertight but airtight joint with the edge of the magnet.

"Mr. Hart also states that 'most of the water enters at the ebonite ring through which the high tension wire passes.' This ebonite ring, however, is also fitted with a ring of oiled felt equally strongly embedded in the groove in the aluminium. In order to show what we mean, we are enclosing an aluminium end plate fitted with the felt rings, which will form an interesting illustration to force home the points. . . . .

"As regards the failure of magnetos that have been for a long time exposed to rain and mud, we are absolutely in a position to explain the reason of this. Every one of our magnetos is fitted with a vulcanite insulating high tension terminal, and we would point out that in no case of such high tension terminal is there any direct communication from the outside to the inside of the machine. The cable holder itself is merely an orifice in a vulcanite block, the orifice being a *cul de sac*, which will hold water as long as it is needed to do so without allowing it to penetrate to the inside of the machine. At the bottom of this opening is the metal portion of the terminal which is conducting the high tension current from the magneto, and the method of joining the cable to the said terminal is by taking a blunt end of cable, which must obviously be a cable of correct diameter to fit the terminal. The conducting wires of this cable are not exposed, but the blunt cable end is pressed as far as it will go into the opening, and the screw which is provided is then passed right through the conductor and insulator together, making the high tension connection.

"With every machine which we send out we give instructions as to how to fit this high tension cable, and specifically point out that it is necessary to cover the end of the cable with hot paraffin wax before it is inserted into the terminal opening. If this is done it is absolutely impossible for the external short circuits to take place, which have really been the cause of the trouble in the Six Days' Trials. . . . . "

That is what the Bosch Magneto Co. have to say on the matter, and no one can doubt that their knowledge



The above sketches will assist readers in following the arguments contained in the Bosch Magneto Co.'s letter, and will serve to show how apparently impossible it is for water to enter the body of the magneto machine. On the left is the aluminium end plate, showing the strips of oiled felt, and on the right the carbon brush and high-tension terminal, together with a sectional view of the same. It will be seen from the latter that the cable holder is a *cul de sac*, and that there is no communication, other than electrical, between it and the interior of the machine.

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of the subject is sufficient to carry the greatest weight, but even so, I confess, I am not in complete agreement. My only point of dissension, however, is with the last sentence, which states that "If this is done it is absolutely impossible for the external short-circuits to take place." True, dipping the end of the H.T. cable in hot wax prevents direct short-circuiting between the H.T. terminal and the body of the magneto machine, but it does not prevent, I contend, the escape of current between the other end, *i.e.*, the spark-plug end, of the cable back to the body of the magneto *via* the film of water I spoke of as having been the cause of my own trouble.

To make this point clear, it is only necessary to bear in mind that the return of the current to the armature, after jumping across the points of the ignition-plug, is by way of the body of the magneto, with which the armature-winding is in contact. Therefore, should there be a path for the current from the plug to the magneto body, without first being obliged to jump the gap, that path will be taken by the current. Now if we assume that the plug terminal, the H.T. cable and the exterior of the magneto machine are each and all coated with a continuous film of water, it must be plain that a direct path for the current is thus afforded, and that without a spark necessarily occurring at the plug. But, to be quite fair to the Bosch Magneto Co., this does not, as we said, impugn the watertightness of the magneto machine itself, and the fitting of one of the special insulating caps for the spark plug terminal now to be had at any accessory dealers should remove even this cause of trouble.

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CORRESPONDENCE.

Dangers of the Streets.

SIR,—My Association has had brought to its notice several cases of accidents occurring through the practice of children hanging on to the backs of carts, vans and motor cars, especially the latter: claims for compensation having actually been made on behalf of children who fell from cars on the backs of which they had been hanging.

Following on correspondence with the Commissioner of Police I am permitted by him to make public the fact that such a practice constitutes *an offence against the Metropolitan Police Act*, 1839, and that if the driver draws the attention of a constable to a person committing this class of offence *the necessary steps will be taken* either by summoning the offender or by cautioning him as to his liability to prosecution, as the circumstances of each individual case may require.

May I ask your aid in drawing the attention of the public and especially of parents to the grave danger which children incur by this habit, to say nothing of the likelihood of prosecution, in the hope that one at least of the dangers of the streets may be partially if not wholly removed.

Thanking you for your courtesy in publishing this letter.

EDWARD DAVIES, Secretary,
The Motor Cab Owner-Drivers' Association.

Self-Starters.

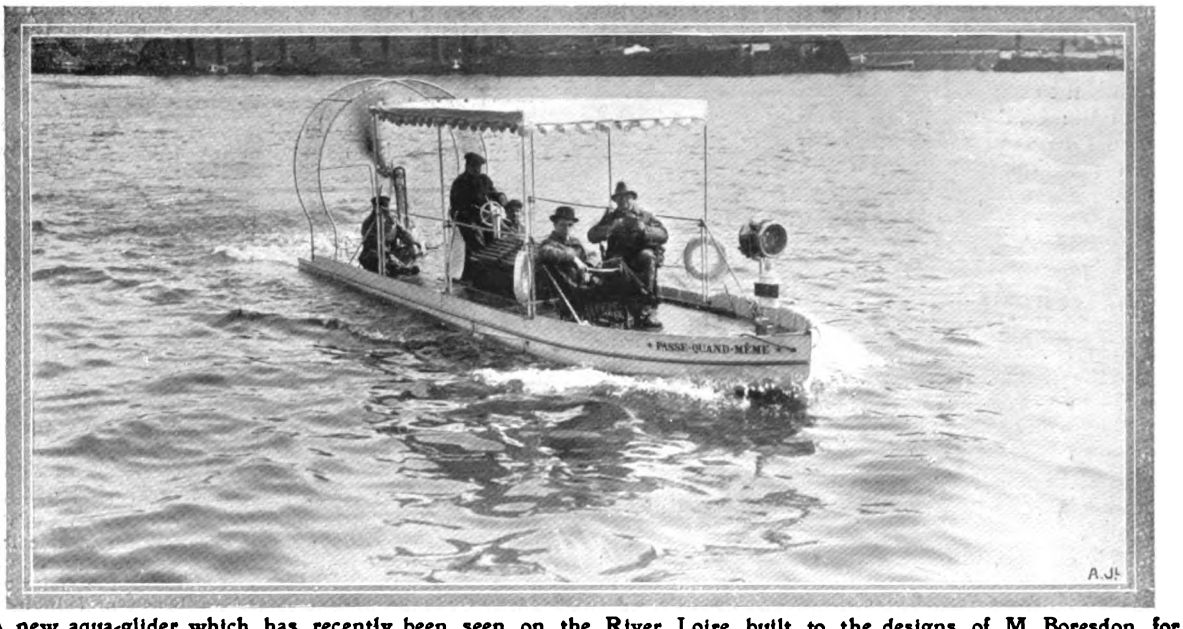
SIR,—In Mr. S. F. Edge's letter to you on self-starters I notice he abstains from giving any particulars as to what he has actually found going wrong with the electrical starter or what kind of trouble the owner of such a car may look forward to in the future. He vaguely predicts that vagaries will certainly occur sooner or later, and asks your readers to imagine what the state of this self-starter and its mechanism will be after twelve months' use, with a large battery of accumulators to be kept in order.

This is all too much guesswork. I prefer an ounce of practice to a ton of theory and prophecies, and with your permission I will give you and your readers the benefits of my own experience with a self-starter which I bought early this year. It has been the first car I have ever owned; I am a perfect novice so also is my chauffeur. Neither of us possess much mechanical knowledge, and you will therefore admit that two such inexperienced people managing a self-starter is a premium upon something going wrong.

And yet nothing has gone wrong so far. I have just returned from a 2,000 mile trip to the Continent through France, Germany and Austria; it included passing over no less than eight high Alpine passes. But let me assure you that the car came out of the test with flying colours and did not fail me once in regard to its electrical equipment or any other part of the machinery.

The car I refer to is a "1912 Cadillac" self-starter. I and my chauffeur have strictly adhered to the directions given by the makers which amount to this:—"Nothing will happen if you will only do what we tell you; leave well alone and don't meddle with any part of the machinery."

Sanderstead. HENRY ROLL.



A new aqua-glider which has recently been seen on the River Loire, built to the designs of M. Boresdon, for special use on shallow waters. The motive power is by means of an internal-combustion engine applied to an air propeller at the back, with which a speed of 30 k.p.h. was obtained during its trials. Steering this craft in our photograph is M. Garros, the well-known aviator.

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Notes from New York

THERE is a Chief Constable down Los Angeles way who is of an inventive turn of mind. He has drawn up a by-law that is to be submitted to the City Council, which would make it compulsory for all motor cars to carry a speed signalling device. This device would be fitted with white, green, and red lights, and they would automatically change with the speed of the car, a white light showing at 8 m.p.h., a green one at 15, and a red one above 20 m.p.h. The last-mentioned is the speed-limit, and any car showing a red light could be stopped by the nearest policeman and its driver arrested. Motorists are not very enthusiastic over the idea.

• • •

Some figures published by the U.S. Government Bureau of Statistics set forth the way in which average value of exported cars has gradually declined, while the figures regarding import of cars show that the average value has increased during the last four years. Regarding exported cars, the figures are: 1908, $1,880; 1909, $1,700; 1910, $1,380; 1911, $1,100; 1912, $990. With regard to cars coming into the country, the average values during the corresponding period have been: 1908, $2,392; 1909, $1,788; 1910, $1,936; 1911, $2,138; 1912, $2,216.

• • •

The La Salle Commercial Association of Bloomington, Ill., is agitating for road improvements, and the proposals, which it is hoped may finally reach the Legislature, may be summed up as follows:—"All street corners, instead of being square, as now, shall be given a radius of not less than 20 ft., so as to make a curve in passing from one street to another. No telegraph, telephone, lamp or other post, trees, shrubs or other obstructions may be placed within 20 ft. of such corners. The corners of all country roads shall be cut back at an angle of 40 degrees, not less than three rods, and no trees, bushes, or other obstruction to the view will be allowed to grow or be maintained within this angle."

• • •

Some nineteen years ago the Police Department of Wilmington put into service a couple of patrol wagons, each drawn by two horses, the equipment costing $2,250. During the period it was in service the cost of maintenance was $24,840. Last year a motor truck was substituted, and during the past twelve months the expenditure on its upkeep has been $724·8 or $60·4 a month, which compares favourably with the average of $115 a month which the "Haymobile" outfit used to cost. The cost of the motor car, fully equipped, was $2,653.

• • •

One of the latest accessories placed on the American market is an adaption of the Vacuum cleaner, designed specially for cleaning all parts of the car as well as the clothes of the passengers. The apparatus is worked by the exhaust from the motor, and a sufficient length of hose is supplied with each cleaner to enable the suction-brush to be used on any part of the car, whether of the limousine or open type.

Following the example of the British Road Board, the United States Government is arranging a roadmakers' "shop window." An agreement has been entered into between the Department of Agriculture and the County Commissioners of Montgomery, Md., under which the Federal Government is to have jurisdiction over a mile and a third of the road from Bradley Lane to Chevy Chase Lake and such portions of the Rockville Pike as may be necessary. The Chevy Chase Road has been divided into nine sections, on each of which a different form of road surface will be laid, while on the Rockville Pike a dozen different types of road will be experimented with. The cost will be jointly borne by the County Authorities and the Federal Government.

• • •

Motorists down Atlanta, Ga., way are kicking up a dust about petrol. It is not the price which is worrying them, but how to get their supply on Sunday, as the City Fathers have passed an ordinance prohibiting the sale of gasolene on the Sabbath.

• • •

At the meeting of the proprietors of garages in New York held on September 10th, after full discussion, it was decided that the United States Department of Commerce and Labour should be asked to investigate the causes that permit of discrimination against the citizens of New York in the matter of the wholesale price of petrol. It was stated by the mover of the resolution that he knew for certain that on the previous Sunday petrol was being sold in Detroit at 13½ to 14½ cents per gallon retail, while New York garagemen were paying 16 cents per gallon wholesale. It was also decided at the meeting to revive the Garage Owners' Association which was formed about two years ago, did good work in getting the price of petrol reduced and then died of "dry rot," to use the words of one of the old members.

• • •

The Everitt Motor Car Co., which originally was the Metzgar Motor Car Co., of Detroit, has now changed its name to the Flanders Motor Co., and in future its output, which will consist of 6-cyl. cars only, will be known as Flanders cars. Two models will be made, one rated at 50-h.p. with cylinders 4 ins. bore by 4¾ ins. stroke, and the other of 40-h.p. with cylinders 3½ ins. bore and 4½ ins. stroke. These cars should not be confused with the Studebaker cars, which were formerly known as Flanders.

• • •

The 1913 models of the Stearn's-Knight cars are to be distinguished by a little statuette, 3½ ins. high, of a Crusader Knight in full armour, mounted by the radiator filler cap.

• • •

With a view to pushing the use of electrical vehicles in New York, the manufacturers and sellers of these vehicles, together with the operators of power stations which supply current for the charging of batteries, have combined to form the New York Electric Vehicle Association. It is proposed to have a centrally located showroom equipped with model charging facilities and to maintain a list of the reliable garages within the city.

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of Chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members. 9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. A. Holmes, deputy chairman, Mr. H. Pye, trustee; committee, Messrs. Hardy, Moores, Emmerson, Shaw, Holland No. 2, Tipper, Oliver, Rawson and Dean.

The minutes of the previous meeting were read and confirmed.

Applications having been dealt with, the committee considered a letter from member No. 930, in which he gave details of an accident caused by a gentleman driving his own car, which collided with the car driven by the member. A claim for damages had been sent to the member's employer, which was made, according to the statement of the gentleman responsible for the accident, on the advice of the R.A.C. solicitor. A plan showing the scene of the accident was carefully considered by the committee and the secretary was instructed to interview the chairman and secretary of the R.A.C. and place the whole facts before them.

The secretary reported that Mr. J. Cates, the Vice-President had expressed his pleasure in presenting a cup for competition at billiards between chauffeurs' societies and garage clubs, to be competed for each year and held by the winning team. If won three times in succession to become the property of the winning club.

The committee agreed that the secretary should continue to represent the Society at the resumed sittings of the R.A.C. Petrol Committee.

The chairman expressed a wish that during the coming show one member, at least, of the committee would be on duty. He intended to be present every evening on behalf of the Society.

Review of Events.

During the past week several members have written asking if I consider the Motor Drivers Approved Society will be financially sound. How can it be otherwise? It is established only for carrying on the work of the Government with regard to the National Health Act, and will therefore be under the supervision of the Health Commissioners.

Garage proprietors would do well in bringing to the notice of their employees that without any trouble they can deposit their cards in this Approved Section for men and women.

Regarding the case mentioned in the commencement of these notes, there is a growing tendency for owners of cars to attach all blame of collisions on the shoulders of chauffeurs, and the experience of our member is the experience of many during this season. Every competent driver knows that great harm is done by incompetent owner-drivers, who create hostile public opinion, and it would be well for the R.A.C. and other owners' societies to give their careful attention in this direction.

Members visiting Paris should call upon our French representative, M. Edouard Falcinelli, Garage Victor Hugo, Rue St. Didier, Avenue Victor Hugo, or at his private residence, 27, Rue Copernic, which is close to the garage.

Accepted for Membership.

Ernest D. Simester, South Croydon. | William Cowie, London, S.W.
F. Harter, London, S.W.

Applications for Membership.

Frank Ralph, London, W. | Charles Brown, Surbiton.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.
Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed
Address

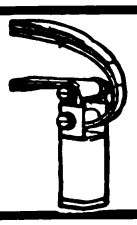
NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.



A British-built Daimler motor 'bus snapped outside the Town Hall, Munich, where it was waiting to pick up a party of local magistrates. Not only in this city, but in Budapest and Vienna, its remarkably quiet running and flexibility in traffic are being demonstrated by Mr. Frank Searle, who is personally conducting the tour.

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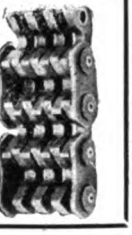
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Car Clearing Bureau.

Kent Agents for Hispano-Suiza, F.A.B. or Vivinus and Everitt Cars.

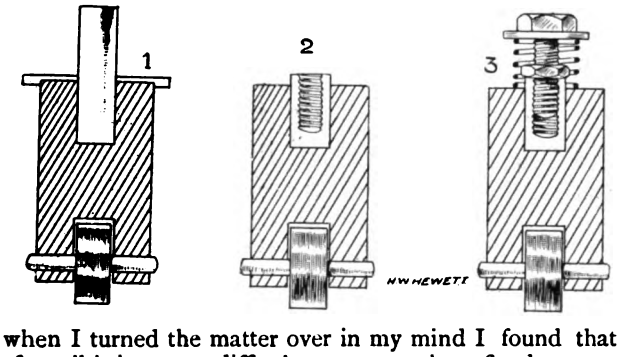
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Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

88.

MAKING FIXED VALVE-TAPPETS ADJUSTABLE.—The engine of my car, a 1910 model 14–16-h.p. Darracq, which has now done a considerable amount of work, gradually lost its smooth and steady running. It made a good deal of noise, and did not turn over so easily and regularly as it used to do. But as the car cannot be spared for a regular overhaul, I have to content myself with keeping it up to scratch in the odd afternoons when it is not wanted on the road. The other day I had a good look round the engine, and found that the clearance between the valve-tappets and stems varied a good deal, and in all cases was considerably larger than it should be. The tappets in this engine, however, are not adjustable, so it seemed at first not quite a simple job to get matters right without having to send the car to a workshop. But



when I turned the matter over in my mind I found that after all it is not so difficult to convert those fixed tappets into adjustable ones, and that it can be done by any chauffeur with the tools he finds, or at least ought to find, in his kit.

The only tools I used for the job are a breast drill, stocks and dies, a hack saw, files, pliers and spanners. The total cost of the materials I used did not exceed 3*s.* 6*d.* I bought 7 ins. of $\frac{1}{2}$-in. brass rod, eight $\frac{5}{16}$-in. steel bolts and nuts, eight short springs, and the same number of flat steel washers. The chief difficulty which I experienced was the removing of the old tappets. In the end I got them out by lifting the cylinders about two inches and holding them in this position by a packing of wooden blocks, when the whole of the tappet with its guide came out easily.

The tappet (Fig. 1) is then held in the vice and the top rod, which is press-fit in the body of the tappet proper, is wrenched out either by means of gas pliers or "Foot prints." Next cut off a length of $\frac{1}{2}$ in. brass rod so that when fitted into the hole it will project about $\frac{1}{8}$ of an inch above the tappet. See that it is a good sliding fit, but not too loose and file two flats on the top part of the rod that shows above the tappet so that it can be gripped with a spanner of suitable size. Finally drill and tap the rod for a $\frac{5}{16}$ in. thread as shown in Fig. 2. This done the rest is little more than plain straight-forward assembling. A $\frac{5}{16}$ in. bolt is screwed into the tapped brass rod and the nut belonging to the bolt used as a lock nut.

Before assembling the tappets it is necessary to harden the head of the nut, which can be done quite easily with a blow lamp of suitable size or in any kitchen fire; care should, however, be taken to harden the heads only and not the threaded part of the bolt.

After assembling the whole according to Fig. 3 with washer and spring under the bolt head, the tappets are replaced on the engine, the cylinders let down, and the clearance between tappet and valve stems can be adjusted to a nicety by means of two spanners. When tightening the lock-nut be sure to hold the bolthead firm, or else you are certain to upset the carefully arrived at setting, and you will have to do it all over again.

If I had had the use of a lathe I should have turned out the top of the bolt-head slightly and fitted a flat fibre washer in it, which, I am sure, would greatly reduce the noise; but even as it is with the steel to steel contact my engine runs very much quieter, and certainly more evenly, on account of the more accurate valve timing arrived at through the adjustable tappets.

Altogether it took me about four hours and a half to do the whole job, and I am very pleased with the result. —*H. W. Hewett.*

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Motor Traffic on Portsmouth Road.

OBSERVATIONS made by the police at Esher on a recent Sunday showed that between 8 a.m. and 8 p.m. 1,487 motor vehicles passed along the Portsmouth Road through the village. Prodigious!

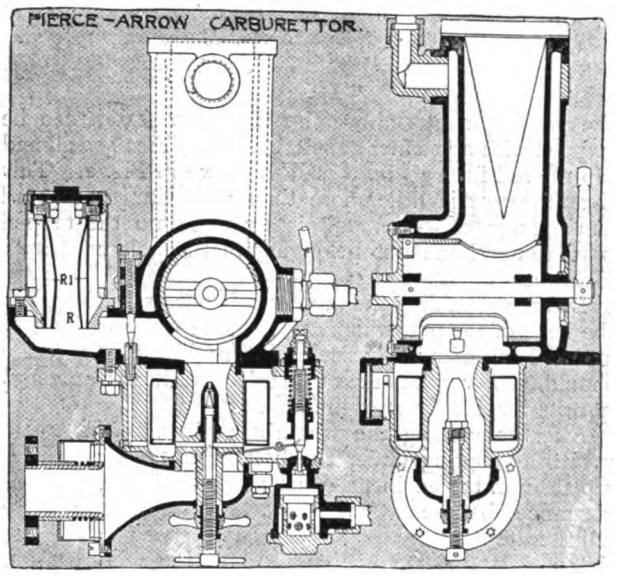
Road Improvements in Gloucestershire.

ONE of the most active local centres of the R.I.A. is that at Bristol, and thanks to their efforts many road improvements at dangerous corners, &c., have been effected. They recently brought to the notice of the Earl of Ducie the dangerous corner at the cross-roads between Cromhall, Tortworth, Falfield, and Charfield, the danger being aggravated by overhanging hedges. Through his agent his lordship has intimated that he will undertake any reasonable work to render the road more safe. Endeavours are also being made by the centre to get an improvement effected at a right-angle turn on the Hanham and Willsbridge road, where an overhanging hedge is a serious menace to the safety of the travelling public.

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FOREIGN MISCELLANY.

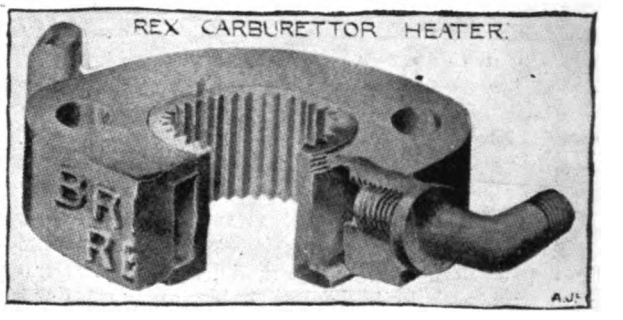
The Pierce-Arrow Carburettor, which is to be fitted to the 1913 models of the car of that name, is provided with a pilot-jet, while both jets are provided with needle adjustments to the jet orifices. The float is of the concentric type, one which is extremely popular in America and which contributes much towards compactness of design; the mixing chamber is water jacketed. A noteworthy peculiarity is afforded by the auxiliary air valve



which, we fancy, is quite unique. This valve consists of two sets of reeds or vertical leaf-shaped springs. The outer set, R1, is the weaker and opens partially. For further opening the reeds bear against the inner set R, which are stiffer, thereby giving a progressive opening to the auxiliary air supply. A still further progression is obtained in that one of the reeds, R1, is weaker than the other, thereby opening slightly in advance. This is also true of the two reeds R.—*The Automobile.*

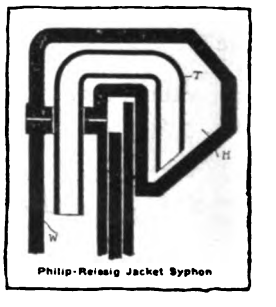
Sideways; its Effect on Tyre Wear.—The increasing popularity of the underhung type of construction, whether the frame of a vehicle itself is hung below the axles or merely the rear springs are so supported, opens an interesting question anent the effect of body sway on tyre wear. All things considered, it would seem that the car in which the body is supported at a comparative height from the roadway might have the advantage that wear on the tyres would be less for the reason that the higher body would correspond to a tuning fork loaded further away from its base of support and consequently would have a slower period of cross vibration. On the other hand, the higher car would have a much greater tendency to sidesway, and it is not unlikely that the effect of the sidesway would almost if not quite counteract the effect of the slower period of cross vibration. Unfortunately there are no accurate data available regarding the performance of overhung and underhung cars as regards tyre wear, and it is practically impossible to draw conclusions from mere opinions, though the subject is an interesting one and might well be thoroughly investigated with a view to ascertaining positively which system of construction actually is the better, judging merely from the viewpoint of the man who pays the tyre bills.—*Motor World, N. Y.*

The heating of the carburettor is a point to which many authorities attach great importance, but for which provision is not always made on existing types of vaporisers. The "Rex" collar is a French idea to remedy this defect.

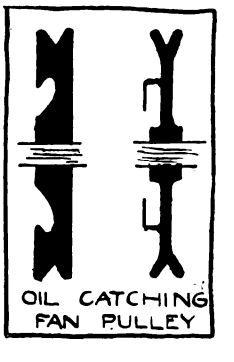


It consists of a hollow collar, through which part of the exhaust gases pass. The collar has corrugations on its inner side, and is intended to be fitted round the uptake pipe from the carburettor.—*Pratique Automobile.*

Cooling of Explosion Motors.—The subject matter of this patent is illustrated in the sketch showing the cooling of an engine of the Knight type, where the water-cooled cylinder head has an inwardly projecting extension forming a water pocket for the cooling of the head. The use of the tube, T, presents a means of communication between the jacket extension, H, which serves to cool the head, and the space, W, of the water jacket cooling the cylinder walls. In draining the water from W, the tube, T, has the effect of a syphon, permitting the space, H, to be drained at the same time.—*The Automobile.*



"Manicured" Pistons to Prevent Smoke.—In efforts to reduce to the minimum smoking from the exhaust, it is fairly common practice where splash oiling prevails to lower the level of the oil in the base, and in not a few cases this results in stinting the pistons and bearings. The smoking is caused naturally by the oil working past the pistons and burning. If the top edge of each piston is neatly rounded off with a fine file and the lower edge left sharp, the oil will be prevented from working past the piston, for the top edge will get but little "hold" on the film, while the lower edge will scrape the oil from the cylinder-wall and return it to the base—*Motor World, N. Y.*



Oil leakage from the front crank-shaft bearing. A simple way to prevent the oil which creeps past this bearing from being flung about by the fan pulley is to fit the latter with a light hollow metal ring concentric with the crank-shaft (see illustration) which will catch all the oil thrown off. An alternative method is to employ a heavy fan pulley and cut a concentric groove in the pulley itself.—*Automobil Welt.*

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Members are asked to observe the ten-mile limit at Welwyn. Hatfield–St. Albans road is closed from the "Gun" public house to "New Fiddle," new sewer being laid; there is an alternative route. Tarring in hand half width at Girtford, also at Wyboston. Roller working full width between 13 and 14 miles south of Grantham, lights at night. The Midland Railway bridge 11 miles south of Grantham is covered with loose stones, and very dangerous to traffic, especially at night. Tarring in hand between Catterick and Catterick Bridge, full width.

LANCASHIRE.—Road widening in progress close to windmill at Little Marton 3½ miles east of Blackpool, lighted at night, special care is necessary.

Members are requested to slow through Garstang and to drive carefully through Poulton-le-Fylde and district.

Guisborough–Redcar Road via *Yearby*, is closed during reconstruction of Tocketts Bridge two miles from Guisborough, lights at night, alternative route *via* Marske, turn to right *via* Upleatham and Skelton Eller.

Malton–Scarborough Road.—Members are advised to sound their horns at the cross-roads here and corners, also control likely.

LEEDS DISTRICT.—Controls are likely to be worked at Moortown, Leeds, and through the ten-mile limit in Burley-in-Wharfedale and in Ilkley; ¼ mile west of Malton, from the first milestone. Control also being worked between Arthington and Pool on the Otley-Boston Spa road, and in Chapeltown Road, Leeds, from Reginald Terrace to St. Mary's Road. Also at Moortown.

EAST.

Ipswich Road.—Members are advised to drive with caution down Dedham Gun Hill, as it is in bad condition at the bottom and dangerous.

SOUTH.

BATH ROAD.—Members are requested to proceed with special caution between Hounslow and Colnbrook, and to proceed slowly through Maidenhead.

Members are advised to drive slowly at night from Sonning Railway Bridge for about half-mile towards Reading. A telephone is now available to members at the Sonning cross-roads Sentry-box. Tarring on all main streets in Henley. Road closed from All Saints Avenue, Maidenhead, to Punt Hill, alternative route, All Saints Avenue, first to left.

BRIGHTON ROAD.—Members are requested to interrogate the Patrol at Kingswood cross-roads. Timing between Reigate and Dorking. Under repair from the top of Reigate Hill to the station. Tarring between Reigate and Povey cross-roads at Redhill, roller between Gatton Point and Redhill.

KENT.—*Dover Road.*—Timing is likely to be in hand at Bexley Heath, Shooter's Hill, Blackheath and Deptford.

Folkestone–Canterbury Road.—Control likely to be working two miles from Folkestone between the "Black Horse" and the "White Horse."

LONDON DISTRICT.—On account of timing operations special care is necessary:—Regent's Park Road; near Church End Station; Finchley; Golder's Green; Redcliffe Gardens; the Boltons; Earl's Court Road, S.W.; Victoria Embankment; near Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; through Croydon to Purley; between Wimbledon and Ewell; Hounslow and Staines; Hounslow–Colnbrook; at foot of Roehampton Hill; Putney Heath; Harlesden; Maida Vale; Highgate; Holloway; Lewisham High Street; also between Sudbury Tram Terminus and Harrow Hill.

MIDDLESEX.—Control on Staines–Sunbury Common Road.

Wood Green.—For the same reason special care is necessary near the junction of Bounds Green Road and Jolly Butchers' Hill. Controls are likely to be working in different places between Southall and Uxbridge.

ESSEX.—*Woodford.*—Special caution between police station and the Bancroft Schools.

OXFORD ROAD.—Under repair full width between Aston Hill, 2¼ miles west of Stokenchurch, roller working. Sewerage work in hand at Gerrard's Cross.

SOUTHAMPTON ROAD.—Controls are being worked at night through Egham. Gas main being laid at Basingstoke. St. Cross Road, Winchester, is being widened. On the Southampton–Christchurch road controls are likely to be working between Christchurch Barracks and Iford Bridge, also at Pokesdown Hill.

Southampton District.—Repairs in hand at Millbrook Old Church. Tramway track under repair at Shirley. Surface repairs proceeding at Bedford Place near Ordnance Office. Control between Frimley and York Town. Controls are likely to be worked at the undermentioned points: South Godstone Station: Ewell and Epsom; Surbiton; Kingston–Leatherhead.

SUSSEX.—Members are specially requested to observe the ten-mile limit at Uckfield.

WEST.

Ross–Monmouth Road.—Remetalling at Dixton, one mile out of Monmouth, and tarring, whole width, roller working.

Oswestry–Gobowen Road.—This road will be closed to traffic between the Five Crosses at Pentreclawdd and the rural district road leading from Pentrewern till the middle of November.

Exeter–Bodmin Road.—Road very rough across the Bodmin Moors and 13 miles west of Launceston, also members should beware of straying cattle across the Moors.

Newton Abbott–Penniun Road.—Members are advised to slow down here on the Torquay road.

Cardiff District.—Controls are likely to be in hand at the following points: On the Cathedral road from Cowbridge road to the tram terminus; on the Swansea and Cowbridge road from the Canton tram terminus to Ely Bridge; on the Newport road from Monmouthshire Bridge and Boundary Stone to Power Station; and for ¼ mile on Leckwith Common on the Cardiff–Penarth road.

Torpoint to Liskeard Road.—Under repair at Wacker 4 miles west of Torpoint, and 12 miles east of Liskeard, dangerous to motorists.

MIDLANDS.

Members are warned to slow through Ashton-under-Lyne.



Motor cars at the popular Scottish race meeting at Ayr last week.

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RACES, RECORDS AND TRIALS.

The San Sebastian Rallye.

EXTRAORDINARY success has attended the San Sebastian Rallye. On Saturday last some sixty-four cars, which had started from various points in Europe, arrived at San Sebastian to compete for the various prizes, the aggregate value of which amounted to about £3,200. The British industry was represented by a Daimler, driven from Boulogne by M. Crespelle, and the Vauxhall, driven from St. Petersburg by M. Ovsiamikoff. French makes of car were in the majority, but the Belgian and German industries were well represented, and two Russo-Baltiques, driven by the Nagel Brothers, which arrived from St. Petersburg, served to show that Russia can build cars. One car which attracted a more than usual amount of attention was the Grand Prix Peugeot car, with Boillot at the wheel, which although not taking part in the competition was driven down from Paris. A novelty was the Gregoire "Menagerie," a clever representation of a well-worn gipsy caravan mounted on a Gregoire chassis. It was driven by the racing driver, Porporato, and carried a party of eleven on board, so it should score heavily in passenger-carrying marks. The exterior was fitted up with the usual appurtenances of chimney, brooms, ladder, flower pots, bird cage (with wooden bird), &c, &c.

The longest distance covered was 2,215 miles from St. Petersburg, while the next longest run was from Riga 1,884 miles.

In the hill-climb on Monday a Rolls-Royce car secured the first prize in the second category of closed cars. In the first category a Gregoire was first and a S.C.A.R. second. In the open car classes a Mathis won the smaller category, while among the larger cars a Benz was first, a Rolls-Royce second, and a Metallurgique close up.

British Motor Cycle Success in Italy.

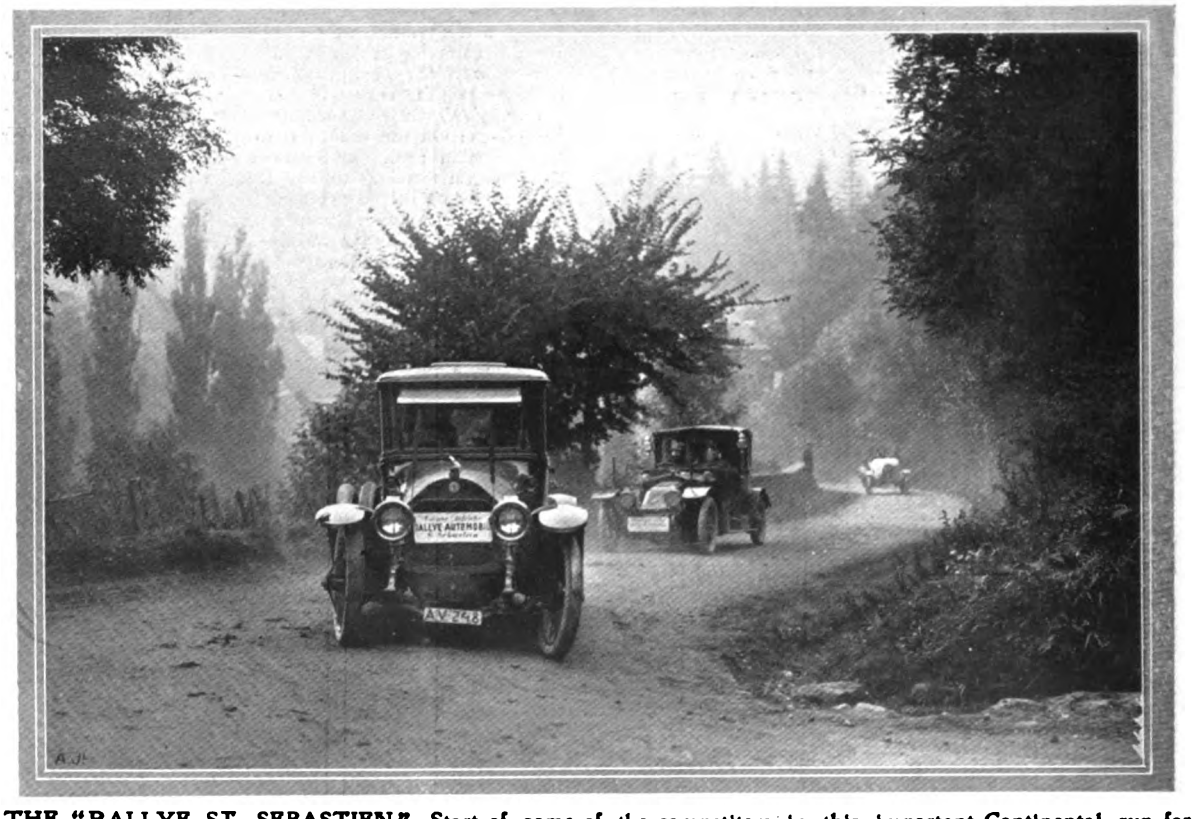
THE British motor cycle successes on the Continent have not been confined to France, and particulars are to hand of a motor cycle race over a distance of 243 kilometres at Brescia on the 15th inst. The first place in the class for machines with engines up to 500 cc. capacity was won by Vailati on a Rudge machine in 3 h. 4 m. $\frac{3}{5}$ s., whilst the prize for the first complete team to finish was won by a team of Triumph machines.

A British Win at Spa.

BRITISH motor cycles won the two principal classes in the kilometre speed trials at Spa, in Belgium, on the 22nd inst. Vernon-Taylor, on his Rudge machine, secured the demi-litre category, covering the kilometre in 49 secs., with Dixon, on a Singer, second in 53 secs.; while in the open class, Griffith, on a Zenith, was first in 43 secs., Janssens, on an Indian, taking second place in 53 secs.

Climbing Arms Hill.

USING a 3½-h.p. chain-driven Bradbury machine fitted with a side-car, Mr. A. R. Abbott succeeded in climbing, with a passenger, up Arms Hill, Henley. The combined weight of the driver and passenger was 21 stone, and it is claimed that this is the first time the hill has been climbed by a single-cylinder machine.



THE "RALLYE ST. SEBASTIEN."—Start of some of the competitors in this important Continental run for touring cars. The leading car is M. G. Grillet's Berliet, which was one of the Berlin starters, taking the Rochefort corner on the well-known Auvergne circuit.

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MOTOR 'BUSES IN WEST LONDON.

A SCORE or so municipal authorities on the west side of London were represented at a conference held on the 19th inst. at Richmond. According to the programme the subject for discussion was the increase in cost of road maintenance due to heavy motor traffic, but as was perhaps not unexpected, most of the discussion raged round the alleged evils of the motor 'bus. Eventually the four following resolutions were carried :—

1. "That owing to the increased cost of road maintenance due to heavy traffic, those conducting such traffic should be required to contribute substantially towards defraying the cost."

2. "That the Government should be asked to introduce a clause in next year's Finance Act to the effect that in future the proceeds of the petrol tax, or other charges levied in connection with motor 'buses, less some small percentage representing the cost of administration, should be paid to the local authorities on whose roads these vehicles run, in proportion to the use made by such vehicles of the roads, and should be made available to those local authorities for the purposes of road maintenance."

3. "That it is urgently necessary, having regard to the increased cost of road maintenance, to the risk of serious accidents, the detriment to property, and the loss and inconvenience to tradesmen and others arising from the use of motor 'buses on highways in the districts surrounding the Metropolis (and other large trade centres) which, in the judgment of the local authority, are unsuited for traffic of this description, that requisite powers should be conferred upon the local authorities, charged with the duty of maintaining and repairing the highways (subject to an appeal to the Local Government Board) to limit and define the routes to be taken by such traffic."

4. "That both the weight on each wheel and the speed of heavy motor vehicles are excessive and should be subjected to stringent restrictions, in the interests of road maintenance, and, particularly, as to width, surface, diameter; and that the time has come for the Commissioner of Police and other licensing authorities to assist the expressed desire of the directors of the omnibus and carrying companies to keep within the legal speed limit of twelve miles per hour, by refusing to license any vehicle for the carriage of passengers or goods, unless such vehicle be so mechanically geared as to render it physically impossible for the driver to exceed that speed."

In his opening remarks the Mayor of Richmond, who presided, said that a census taken at one spot in Richmond on the previous Sunday showed that of 1,646 motor vehicles which passed 919 were motor 'buses.

Mr. J. J. Bisgood said that if Richmond received all the petrol tax on the 820,000 miles run by motor omnibuses over their thirty miles of road it would only amount to £732, which was insufficient.

Mr. Pullen urged the abolition of the petrol tax, and the substitution by the local authorities of a rate of one penny per omnibus mile.

Mr. Saunders suggested that if 'bus owners contributed towards the upkeep of a quarter of the road area the local authorities would be content.

Mr. Cooper, the Borough Surveyor of Wimbledon, pointed out that the Road Board had not two millions in its possession, as was continually stated by the various speakers at the meeting. It only had £633,000, and had done very well with it. He also pointed out that in many localities the authorities owned the tramways, and it was hardly fair to expect them to legislate for motor 'buses.

In connection with this meeting, elsewhere in this issue, we deal with it editorially.

A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Controls in Ireland.—The Irish office of the Association is informed that the police of County Down are timing cars over measured distances on the following roads: Newcastle-Kilkee, Warrenpoint-Rostrevor, Warrenpoint-Newry, and Newry and Banbridge. Members are advised to observe proper caution in these districts as the positions of these controls are frequently changed.

Croydon Relief Road.—The scheme for the construction of a new road round Croydon to enable the narrow and difficult main road to be avoided was considered by the Croydon Borough Council on Monday last, when several local members of the Association took part in a deputation to the Council in support of the scheme. The new road will join the present main road at Thornton Heath pond and rejoin it at Purley Corner. The Association, realising the importance of this improvement to motorists, has consistently advocated it since it was first proposed. The Road Board are contributing £30,000 towards the scheme.

Speed Limits.—*Paignton.*—The County Council of Devon have applied for an order prohibiting motor cars on the highway known as Eastern Esplanade, Paignton. Objections must be lodged on or before the 8th prox.

Streatham.—An inquiry will be held on October 16th into the application lodged last year by the London County Council for a ten-miles speed limit order for the following roads in Streatham—that portion of Streatham High Road, which extends from the south side of Penfold Road to the south side of Stanthorpe Road and so much of Tooting Bec Gardens, as extends from its junction with Streatham High Road to its junction with Ambleside Avenue. The Association will oppose the application for the Streatham ten-miles order, and will also be represented at the inquiry into the prohibition application for Paignton. Members able to furnish useful information in connection with both applications, should communicate with the Secretary as soon as possible.

Important Notice. — Birmingham Triennial Musical Festival.—The Automobile Association has been asked by the Chief Constable to request that whilst the above festival is being held at the Town Hall, on October 1st to 4th inclusive, motorists will give "audible warning of approach" only when necessary, and then, as far as possible, in such a manner as will not cause inconvenience to the audiences inside the Hall. During certain hours the roads immediately in the vicinity of the Town Hall will be closed to heavy traffic, and an extra number of police will be on duty to control and direct the remainder. The presence of these additional men should render a good deal of horn blowing unnecessary.

Address Wanted.—If "Irate Member" will furnish his name and address to the Secretary, his communication will receive attention.

Obstacles Placed on Roads.—A member of the Association recently observed a tramp placing large stones in the middle of the road, and, acting in the interests of all road users, eventually had him arrested, and gave the necessary time to attending the Court, where the culprit was sentenced to one month's hard labour. As several large stones have been placed on roads in this district (near Llanidloes) it is satisfactory to record the punishment of this man, who has probably cultivated a habit of making the roads dangerous to vehicles.

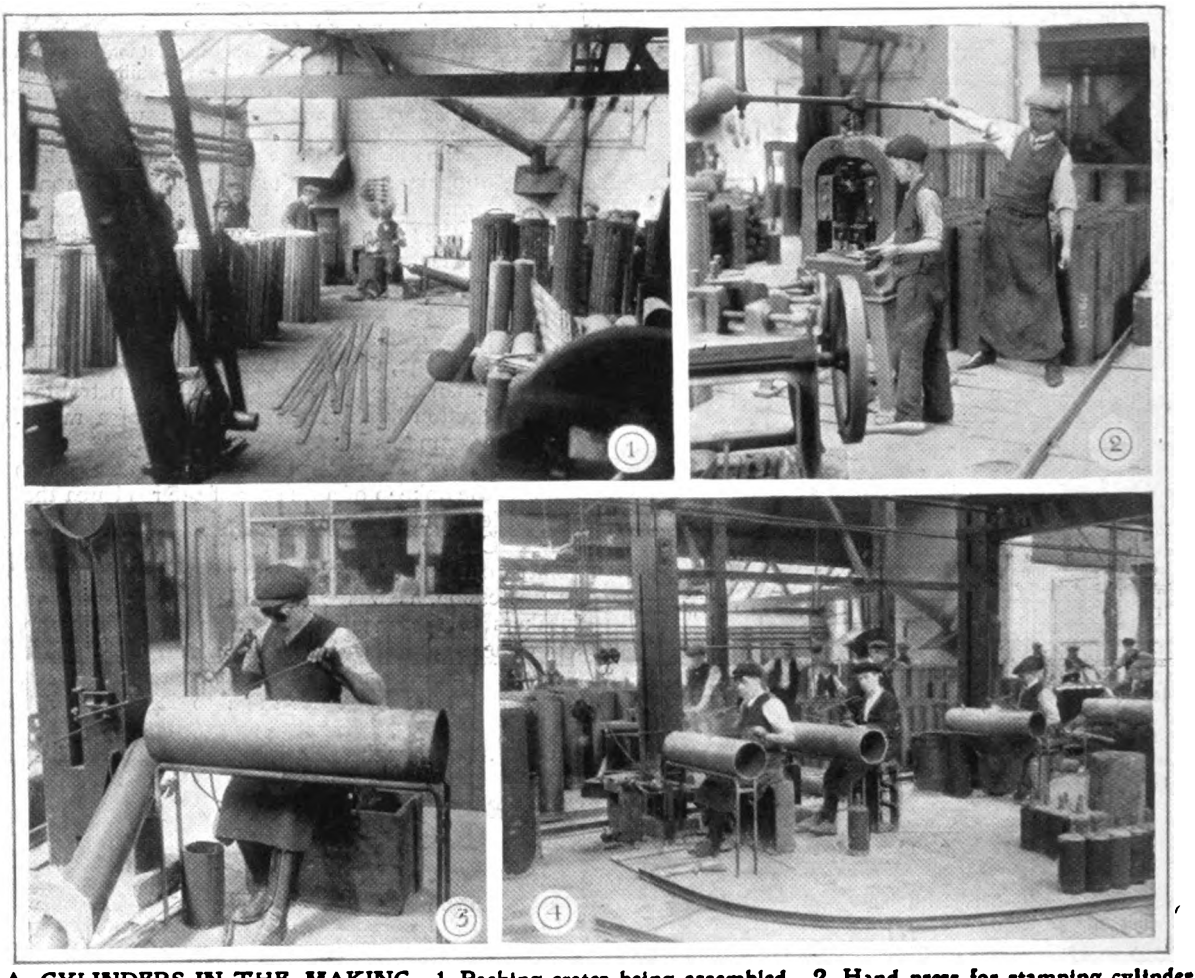
Opening of the I.A.E. Winter Session.

WEDNESDAY, October 9th, is fixed for the opening meeting of the winter session of the Institution of Automobile Engineers, when Mr. T. B. Browne, M.I.Mech.E., will deliver his Presidential address on "The Progress of Automobilism." This meeting will be held in the hall of the Royal Society of Arts, John Street, Adelphi, W.C., as the hall of the Institute of Mechanical Engineers, the usual meeting place, is temporarily closed for alterations and repairs. Tickets can be obtained from the Secretary of the I.A.E., 13, Queen Anne's Gate, Westminster, S.W.

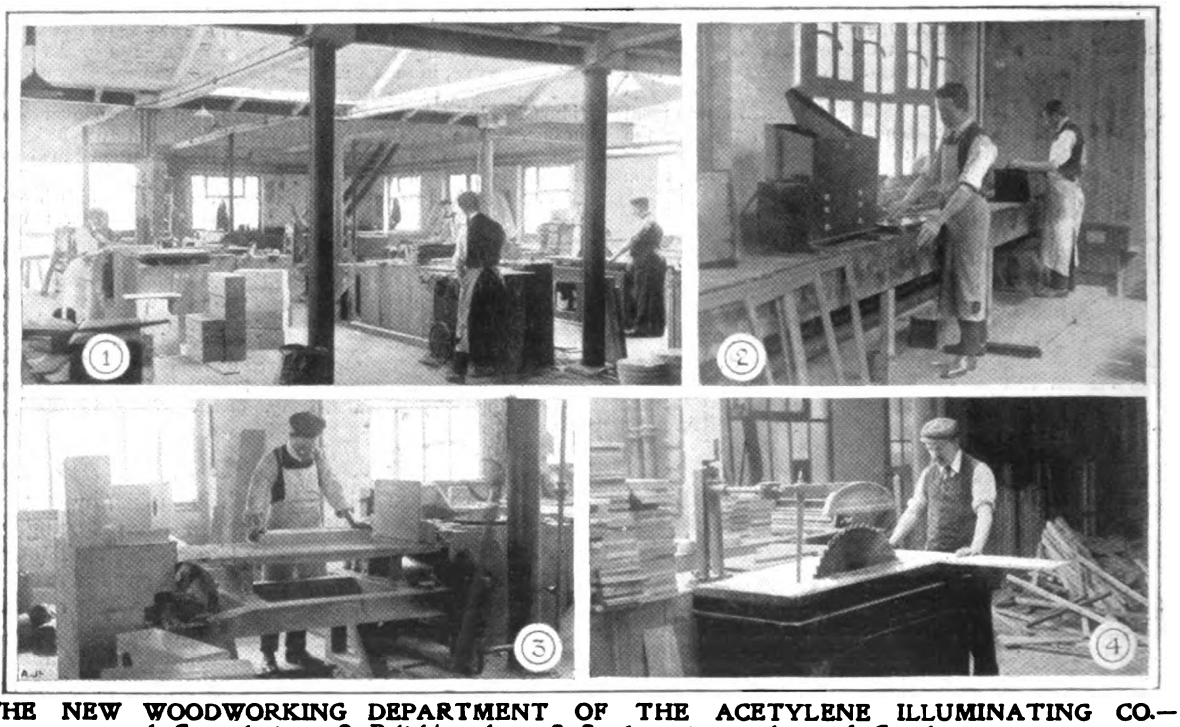
New Road Surface at Kensington.

CONSIDERABLE interest is being taken by motorists in a new system of road construction which is being tried in Addison Road and Addison Crescent, W. The road is built in two parts, there being a ground work of 2¾ inches of graded granite mixed with eight per cent. of bitumen and on this is laid a one-inch "carpet" of eighty per cent. sand, ten per cent. graded granite, and ten per cent. bitumen. It is claimed that a waterproof, non-slippery surface is obtained which hardens in proportion to the amount of traffic passing over it.

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D.A. CYLINDERS IN THE MAKING.—1. Packing crates being assembled. 2. Hand press for stamping cylinder bottoms. 3. Welding the seam of a D.A. cylinder. 4. General view of the welding shop.



THE NEW WOODWORKING DEPARTMENT OF THE ACETYLENE ILLUMINATING CO.—1. General view. 2. Polishing shop. 3. Sandpapering machine. 4. Circular saw.

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NEW DEPARTMENT AT THE WORKS OF THE ACETYLENE ILLUMINATING COMPANY.

OWING to the continuously growing demand for their well-known D.A. cylinder outfits for illuminating and industrial purposes, the directors of the Acetylene Illuminating Co. have found it advisable to add an entirely new wood-working department to their already extensive works at Balzac Street, Clapham, S.W., where they manufacture the well-known D.A. cylinders. The first set of photographs, reproduced herewith, shows the process of manufacturing the D.A. cylinders. Sheet steel of suitable thickness is bent cold by special machinery, and the seam is closed up by the oxy-acetylene welding process. In a huge hand-press, which forms the subject of a separate illustration, the bottom caps of the cylinders are stamped, and are afterwards welded on by the same process.

Our second set of photographs shows the new wood-working department in which the boxes for D.A. cylinders and other products of the company's works are being manufactured. From these illustrations it will be seen that a very elaborate plant has been laid down for this purpose.

The best raw materials only are used in the construction of the boxes and cylinder cases, and modern machine tools combined with up-to-date methods insure a finished article of very high quality at quite a moderate price.

So large indeed is the plant that has been established in this new department, that the Acetylene Illuminating Co., who until recently had their wood-work made outside, are now able not only to supply their own wants, but they are in a position to manufacture in quantities tool boxes, accumulator cases, wind-screens, and similar articles for the equipment of motor cars at reasonable prices. They are prepared to either supply the design for these accessories, or they will manufacture to their clients' own drawings. Motor manufacturers, coachbuilders or other traders interested in the supply of well-finished wood-work that combines high quality with moderate price, should address their enquiries to The Acetylene Illuminating Co., Ltd., 268–270, South Lambeth Road, London, S.W., where, we feel sure, they will receive prompt attention.

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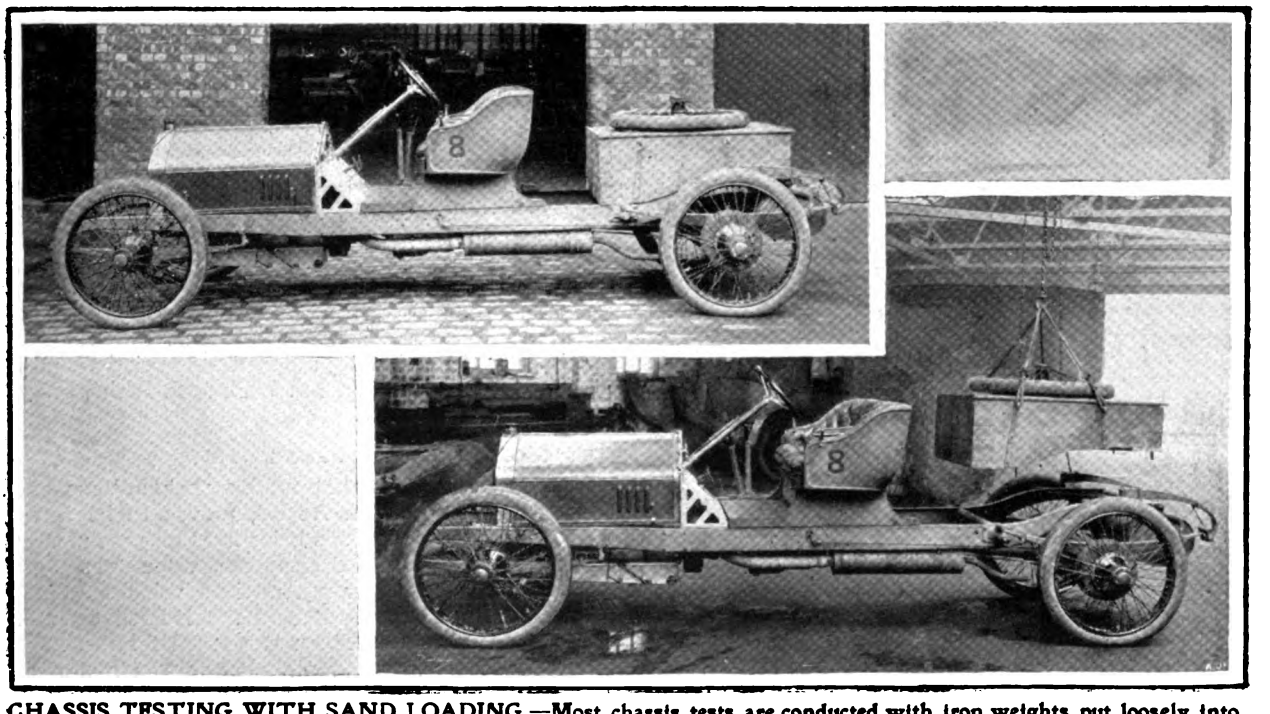
Classes at the Polytechnics.

AT the Borough Polytechnic Institute, evening classes for the study of motor car engineering have been arranged for motorists, engineers and draughtsmen, and the arrangements include a course of lectures as well as drawing classes and practical work in connection with motor cars. The courses commence on Monday next, and full information can be obtained from the Institute in Borough Road, London, S.E. Similar courses are also arranged by the Northampton Institute and the Regent Street Polytechnics, both of which publish prospectuses giving full details of the lectures and classes.

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The A.A.-M.U. and Cleanliness.

KEEPING in view its aim to look after the comfort and convenience of touring motorists, the A.A.-M.U. have decided to provide a number of handsome toilet cabinets containing a brush and comb, &c., to hotels, subject to the hotel proprietor undertaking to keep the toilet box supplied with small hand towels for the use of members. The cabinets are locked so that their contents are available only to members, all of whom are provided with keys. It is a commendable move and should ultimately result in the disappearance of the insanitary roller towel common to all visitors.



CHASSIS TESTING WITH SAND LOADING.—Most chassis tests are conducted with iron weights put loosely into a box, but the latest Crossley method is to use sand, so that it shall be a noiseless load over a rough road and enable the driver to hear whether his gears are running quietly. The above views show a Crossley chassis prepared for road testing, with its sand-box and spare wheel.

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CURRENT ITEMS OF INTEREST.

Croydon and the Relief Road.

By thirty-five votes to sixteen the Croydon Borough Council, on Monday night, decided to go forward with the scheme for the construction of a relief road to permit through traffic to avoid the centre of the borough. The Council will now apply to the Local Government Board to sanction a loan of £19,743, the remainder of the estimated capital cost of £55,493 being met by a grant from the Road Board of £30,000. A deputation from the Roads Improvement Association presented a memorial in favour of the scheme and the Croydon Chamber of Commerce sent a resolution asking the Council not to proceed with the scheme. Mr. F. Link stated that last week, on an average, over 500 motor cars per day passed in or out of the borough at Purley, where the new road would begin.

Mr. Stenson Cooke Has an Accident.

His many friends will regret to hear that the indefatigable secretary of the A.A. and M.U. met with an accident on Saturday last. On his way to the Norwich offices he made a call at Newmarket, and when about to re-enter the car he remembered he had left a map behind in the hotel. He was returning to get it when his foot slipped on the Mosaic pavement with the result that the fibula bone was broken just above the ankle. Although not serious the injury is a somewhat painful one, and will necessitate Mr. Cooke laying up for some time, a hard trial for a man of his energy to bear.



The O'Gorman Trophy, which once again—for the fourth time—comes round for competition at the race meeting at Brooklands to-day.

In the Enemy's Camp.

One stand at the exhibition in connection with the Municipal Tramways Association, held at West Ham this week, which received more than the usual amount of attention was that on which was mounted one of the latest 30-h.p. Tilling-Stevens petrol electric 'buses. Vehicles of this type are used by the Newcastle and Liverpool Corporations in connection with their tramways, and a number of tramway companies in various parts of the country have placed orders for these 'buses which will be used as feeders to their systems. In connection with the exhibition a demonstration was also given with the trackless trolley system.

Tarred Roads in the Isle of Wight.

The old canard about washings from tar-sprayed roads being injurious to trout has been revived in the Isle of Wight, where the owners of the fishing rights in the Carisbrooke streams have sent along to the Isle of Wight Rural District Council a claim for substantial compensation for serious damage to the streams and destruction of trout, &c. The Council referred the matter to the contractor, who replied that the preparation used is quite harmless to fish, and the Council has therefore declined to accept the claimants' kind suggestion that the claim should be arbitrated upon.

Help for the R.I.A.

Recent subscriptions received by the Roads Improvement Association include 100 guineas from the Automobile Association and Motor Union, £100 from the R.A.C., and £100 from the Society of Motor Manufacturers and Traders, as well as a number of grants and donations from various provincial clubs. Encouraging as is this recognition of the useful work which is being done by the R.I.A., it is rather strange that the rank and file of road users do not support the useful work, and take a more active interest in the road question. Anyone who wishes to become an individual subscriber can obtain full information regarding the Association and its work from the Secretary, Mr. Wallace E. Riche, Caxton House, Westminster.

The Motor Show in Vancouver.

The Second Annual Motor Show held in Vancouver, during the last week in August, proved to be a very striking success, the exhibits being five times as numerous as last year, while the aggregate value was about £200,000. A good many American vehicles were on view, Canada was represented by the Russell car, while the Argyll car and the Albion van stood for the British industry. Vancouver is rapidly becoming a motor city, and at the present time there are about 1,700 motor vehicles, including motor cycles and vans, in use. The number of commercial vehicles has gone up during the last two years from 20 to over 200.

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A Motor Boat Speed Test.

ONE of the R.M.Y.C. Restricted Class boats—Mr. J. Bird's "Rip III"—was tested over the measured mile in Southampton Water the other day, and was found to give an average speed of 30·181 knots. For three runs with the tide the speeds worked out to 32·143, 30·000 and 29·752 knots respectively, while against the tide the speeds were 30·252, 30·508 and 28·571 knots. The hull is a Saunders-Fauber hydroplane of 22 ft. overall length with a beam of 4 ft. 6 ins., and the engine is a 20-h.p.

ROUNDABOUT NOTES.

THE Pathfinder Co., Ltd., has now been formed to look after the sales of this car in England and showrooms have been acquired at 12, Heddon Street, Regent Street, W. Following its splendid performance in the Land's End to John o' Groat's trial, as witness the R.A.C. certificate published in our last issue, the car is meeting with a great reception.

MR. CHARLES R. CLARK, who has had 14 years' experience with the motor trade, including several years with Messrs. Humber, Ltd., has resigned his position as sales manager to the Mallard Motor Co., Ltd., of Liverpool, to take up a similar position with Messrs. Whiting, Ltd., of 334, Euston Road, London, N.W. In his new position, Mr. Clark, who is very popular with the agents, will control the sales of the Hupmobile car in this country, on one of which, it will be remembered, he secured first prize in the recent Two Days' Trial of the Lancashire A.C. in the Lake District.

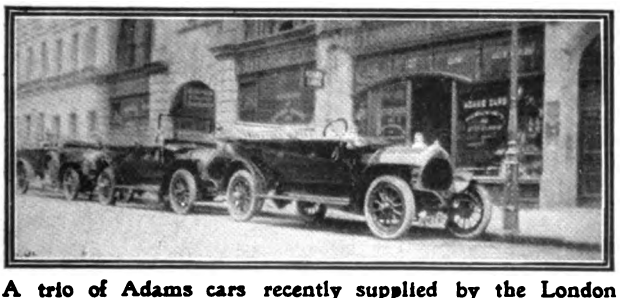
CONGRATULATIONS to Mr. Owen Clegg, late works manager to the Rover Company, who has accepted the position of works manager and designer with the Darracq firm at their works at Suresnes near Paris. Mr. Clegg was formerly with the Wolseley Co.

AN exact duplicate of the Austro-Daimler engine which was fitted to Mr. S. F. Cody's biplane, on which he won the £5,000 prize, in the War Office Aeroplane Trials, is now on view at the showrooms of the Austrian-Daimler Motor Co. in Great Portland Street, who take this opportunity of extending a welcome to all lovers of engineering. There are many special features incorporated in this design, and interesting points in its construction will be lucidiy explained to visitors.

ON September 24th, the first annual dinner of the Hansa Car and General Motor Co., Ltd., was held at the Criterion, Mr. Henio Biezynski, the Chairman of the Company, presiding, a number of friends being present for the purpose of wishing the directors and Company success in their new undertaking. The Company, as its name implies, has been formed for the purpose of exploiting the Hansa car in this country, which, although known very well on the Continent, where it has gained numerous successes both in hill-climbing and reliability trials, is a newcomer here. The Hansa car is of a most distinctive and novel type, and we hope shortly to give our readers a full description of its many novel features. The Company has acquired showrooms in the best part of Shaftesbury Avenue, where the various types of the Hansa cars will be on show.

THE 1913 15-h.p. model Talbots have already commenced to show that they are capable of maintaining the Talbot claim for invincibility. A cable from South Africa states that one of them won the recent mile speed trial at Johannesburg.

WARLAND dual rims have now been adopted as standard by the Brasier Car Co. on all their cars. At the forthcoming Olympia Show there will be from 60 to 80 cars of various makes fitted with these rims.



A trio of Adams cars recently supplied by the London agents, the Automobile Exchange, Great Portland Street, all fitted with time-saving Warland Dual rims.

Company Doings

B.S.A. Report.

THE report of the Birmingham Small Arms Co., Ltd., for the year to 31st July last, to be presented at the meeting on 30th instant, states that the profit available for distribution (including rents and income from the Daimler Co., Ltd., and other investments), after due allowance for depreciation, amounts to £178,453, which, with the amount brought forward £55,435, makes £233,889. An interim dividend of 5 per cent., free of income-tax, has been paid on the ordinary shares, and the Directors recommend a further payment of 5 per cent. and a bonus of 1s. per share on these shares, free of income tax, transferring to reserve fund £50,000 (which will then amount to £290,000), and carrying forward £59,277. The Directors regret having to announce that since the last annual meeting Mr. F. Dudley Docker, C.B., has resigned. They have appointed to seats on the Board Mr. A. Neville Chamberlain and Colonel H. C. L. Holden, C.B., F.R.S., late R.A., and late superintendent of the Royal Gun and Carriage Factories, Woolwich Arsenal.

NEW COMPANIES REGISTERED.

W. and B. Woodyatt, Ltd., Portland Garage, Portland Road, Malvern.—Capital £20,000, in £1 shares (10,000 six per cent. cumulative preference). Acquiring business of livery stable and motor proprietors carried on by J. Woodyatt and T. Gwynn (executors of the late W. Woodyatt) and Bertha Woodyatt at Portland Road, Malvern. First directors: D. Best, P. R. Farrant, Dr. H. W. Jacob, Miss Bertha Woodyatt, J. Woodyatt, and Miss R. M. Blanche Woodyatt.

Private Companies.

William Guest and Son, Ltd.—Capital £3,000, in £1 shares. Manufacturers and repairers of motor cars, &c., under agreement with H. Guest, trading as William Guest and Son. First directors, H. Guest and W. H. Guest.

Hampstead Motor Garage, Ltd.—Capital £500, in £1 shares.

London Improved Motor Coach Builders, Ltd., 149, Lupus Street, Westminster.—Capital £20,000, in £1 shares (10,000 six per cent. cumulative preference). Acquiring business of the Thames Bank Wharf Motor Works, Ltd.

Minerva Motors, Ltd.—Capital £90,000, in £1 shares. Acquiring the undertakings of Minerva Motors, Ltd., and Minerva Goods and Repairs, Ltd. First directors: D. Citroen, W. C. Holloway, and S. Forster.

Saunderson and Mills, Ltd., Elstow Works, Elstow, near Bedford.—Capital £21,000, in £1 shares. Manufacturers of agricultural and transport motors, motor cars, &c. Acquiring the business of Saunderson and Gifkins, engineers and ironfounders, carried on at Bedford.

Sebastian Diesel Motor Boat Co., Ltd. — Capital £80,000, in £1 shares.

Simpson's, Ltd.—Capital £2,000, in £1 shares. Acquiring business of cycle and motor dealers and repairers carried on by J. M. Mawson and Elizabeth E. Simpson at 1, Cavendish Street, and 6, Dalton Road, Barrow, Lancs., as Simpson and Co.

PUBLICATIONS RECEIVED.

Economic Protection of the India-Rubber. Decree and Regulations Passed by United States of Brazil. Paris: Bureau de Renseignments du Cresil à Paris, 59, rue de Richelieu.

The Daimler Bulletin, August, 1912. The Daimler Co., Ltd., Daimler Works, Coventry.

Motor Car Construction. A Practical Manual. By R. W. A. Brewer. London: Crosby, Lockwood and Son. Price 5s. net.

Announcements, Educational and Social, for the Session 1912-13. The Northampton Polytechnic Institute, St. John Street, London, E.C.

Petrol Engine Construction and Drawing. By W. E. Dommett, Wh. Ex., A.M.I.A.E. London: Edward Arnold, 41-43, Maddox Street, W. Price 3s. net.

Famous Airmen and their Equipments; with some Notes on First-Aid in Emergencies. London: Burroughs Wellcome and Co.

Catalogues.

Automoviles Vauxhall (Spanish Edition). Vauxhall Motors, Ltd., 180-182, Great Portland Street, W.

Maudslay Industrial Vehicles. The Maudslay Motor Co., Ltd., Parkside, Coventry.

Automobiles Mathis. Mathis Motors, Ltd., 36, Long Acre, London, W.C.

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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

19,585. Sept. 2nd, 1911. Date claimed under International Convention, April 7th, 1911. Improvements in Cone Friction Clutches. Daimler Motoren Gesellschaft, Fabrikstrasse, Unterturkheim, Germany. This invention relates to cone friction clutches of the type in which two friction cones are pressed apart on one shaft by means of a spring so that they engage with corresponding hollow cones on the other shaft. These clutches are used on automobile vehicles under the control of a pedal. This invention has for its object to simplify the operating mechanism to increase the reliability. Fig. 1 is a sectional side elevation. Fig. 2 is a sectional plan of same.

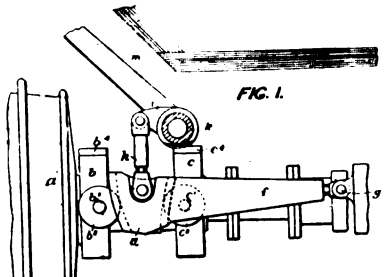


FIG. 1.

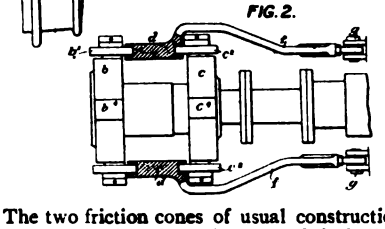


FIG. 2.

The two friction cones of usual construction are contained in the casing, *a*, and the hollow spindle of one part has fixed to it a ring, *b*, while the inner and concentric hollow spindle of the other part is connected with the ring, *c*, the two rings being prevented from turning. A projection, c^1, upon the ring, *c*, engages with the hub of a lever arm just above it. A projection, b^1, on the ring, *b*, may be engaged with another fixed object. Rollers, b^2, c^2, are mounted upon pins, b^1, c^1, on respective rings. Cam or wedge members, D, move between opposed rollers, b^2, c^2. The wedges, *d*, are carried by arms, *f*, pivoted at *g*, to the gear-box or other fixed object. Links or rods, *h*, which may be adjustable in length, are pivotally connected between the wedges, *d*, and arms, *i*, which turn with the pedal, *m*, on the shaft, *k*. The operating sides of the wedges, which may be grooved as shown, and engage the rollers, b^2, c^2, are curved or formed as arcs of circles. When the lever, *m*, is depressed the arms, *i*, are lowered, and the rods, *h*, force the wedges down between the rollers, b^2 and c^2. The wedges are guided and controlled in their movements by the arms, *f*, and as they descend they act evenly upon the rollers, b^2, c^2, and thereby force the rings, *b*, *c*, apart. These rings being connected to the hollow bosses of the slidable friction cones it follows that the cones will be moved towards one another and away from their respective operating surfaces, and the clutch will be opened. A strong spring tending to press the cones apart causes the parts to return to their normal positions and the clutch to be closed when pressure is removed from the pedal, *m*.—Sept. 4th, 1912.

20,959. Sept. 22nd, 1911. Improvements in Internal Combustion Engines. The Wolseley Tool and Motor Car Co., Ltd., and A. A. Remington, Adderley Park, Birmingham.—This invention relates to four-stroke cycle internal combustion engines of the type in which extra air or extra combustible mixture is introduced into the cylinder behind the piston when the piston is at about the end of the suction stroke, the mixture drawn in through the ordinary induction port being suitably strengthened in proportion to the extra air thus introduced (that is to say, if extra air only is introduced) with the result that the power of the engine is increased particularly at high speeds when, in the case of an ordinary engine, the charge would be likely to be reduced owing to wire-drawing through the port. In this invention, the admission of extra air, or extra combustible mixture, into the cylinder is controlled by the movements of a single reciprocating

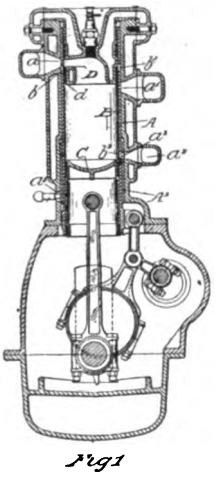


Fig 1

sleeve valve which surrounds the piston, and preferably, by the piston also, an admission port through the sleeve valve registering with an inlet port of the cylinder for the extra air or mixture. The piston opens the sleeve port while the latter is open to the cylinder port, and the movement of the sleeve closes its port to the cylinder port. The air or mixture for augmenting the main charge which is drawn into the cylinder may be compressed within the crank chamber for being forced into the cylinder, or may be compressed by means of a blower of the Roots type. The quantity of extra air or mixture required to give the maximum effect appears to be roughly about half the stroke volume of the engine at a pressure of about five pounds per square inch above atmosphere. The time of cutting off the inlet for the extra air or mixture is regulated by a portion of the cylinder adapted to be moved within an opening within which it is fitted normally stationary, but is moved by the operator to effect the required adjustment. Fig. 1 is a vertical section. A is the engine cylinder within which a single sleeve valve, B, is fitted, and, C, the piston which reciprocates within the sleeve valve, B. The sleeve valve with its inlet and exhaust ports, *b* and b^1, the cylinder end, D, and packing ring, *d*, and the cylinder inlet and exhaust ports, *a* and a^1, are, as described in Specification 1,421 of 1911, and the valve mechanism is as described in Specification 16,783 of 1910. (Both of these specifications appeared upon this page.) In this invention a port, b^2, is formed through the side of the sleeve valve, B, which during a portion of each cycle of the engine, registers with a cylinder port, a^2, and admits through such port into the interior of the sleeve valve extra air or mixture at a point at or near to the end of the suction stroke of the piston. The port, b^2, however, notwithstanding that it may at the time be open to the port, a^2, is closed by the piston, C, until the piston is nearing the completion of its suction stroke, and in completing such stroke the piston itself uncovers the port, b^2. The sleeve valve is then moving towards the crank-shaft, and by the time it reaches its mid-position, bringing both the ports, *b* and b^1, into position to be sealed by the packing ring, *d*, the port, b^2, has passed beyond the port, a^2, and the extra air or mixture is thus cut off by the sleeve valve, and the compression and firing take place with all the ports closed. The valve mechanism illustrated will ensure that there will be a pause or very slow movement of the valve while in or about its mid-position. For adjusting from time to time, the point at which the extra air or mixture will be cut off by the sleeve valve, a sleeve, A^1, through which the sleeve valve, B, is a sliding fit, is shown as fitted within a portion of enlarged diameter of the cylinder. This sleeve, A^1, forms in effect a movable portion of the cylinder, and the port, a^2, is constantly in communication with the supply passage, a^3, for the extra air or mixture. This sleeve, A^1, may be moved towards or from the crank-shaft, such as through a medium of a stud, a^4, which projects from the sleeve through a slot, a^5, of the cylinder, the stud being operated by a lever. By means of this sleeve, A^1, the position of the port, a^2, may be adjusted endways of the cylinder, ensuring either an earlier or later cut off of the extra air or mixture as may be required.—Sept. 4th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published September 19th, 1912.

5,565. H. W. Buddicom. Resilient wheels.
8,206. G. W. Hutchinson. Sparking regulator for I.C. m.
12,467. J. Neumann. Water supply to vaporizers.
16,953. H. C Dupuis. Valve-gear.
19,122. F. R. Simms and Simms' Magneto Co. Magnetos for combined ignition and lighting.
19,493. J. R. Churchill. Springs.
19,585. Daimler Motoren Ges. Cone friction clutches.
19,629. P. Papini. Route-indicator signalling devices.
19,722. S. J. Ware. Carburettors.
20,337. A. V. Terry. Tool for removal of valves.
20,758. K. Crossley, — Webb and L. Barley. Oil-sprayers.
20,959. Wolseley Tool and Motor Car Co. and A. Remington. I.C. engines.
22,650. Saver Clutch Co. and Others. Variable-speed gearing.
22,825. C. Miles. Clutches.
23,799. J. H. Lovell. Mirrors for public thoroughfares.
24,368. Argylls, Ltd., and J. S. Matthew. Seats for cars.
25,791. E. Kent. Construction of motor cars.
26,270. J. Weller. Combustion-chambers of I.C. m.
27,293. F. F. Stratton and — Perrett. Change-speed-gear.
27,301. H. G. Southard. Rachet-driven petrol pump.

Applied for in 1912.

Published September 19th, 1912.

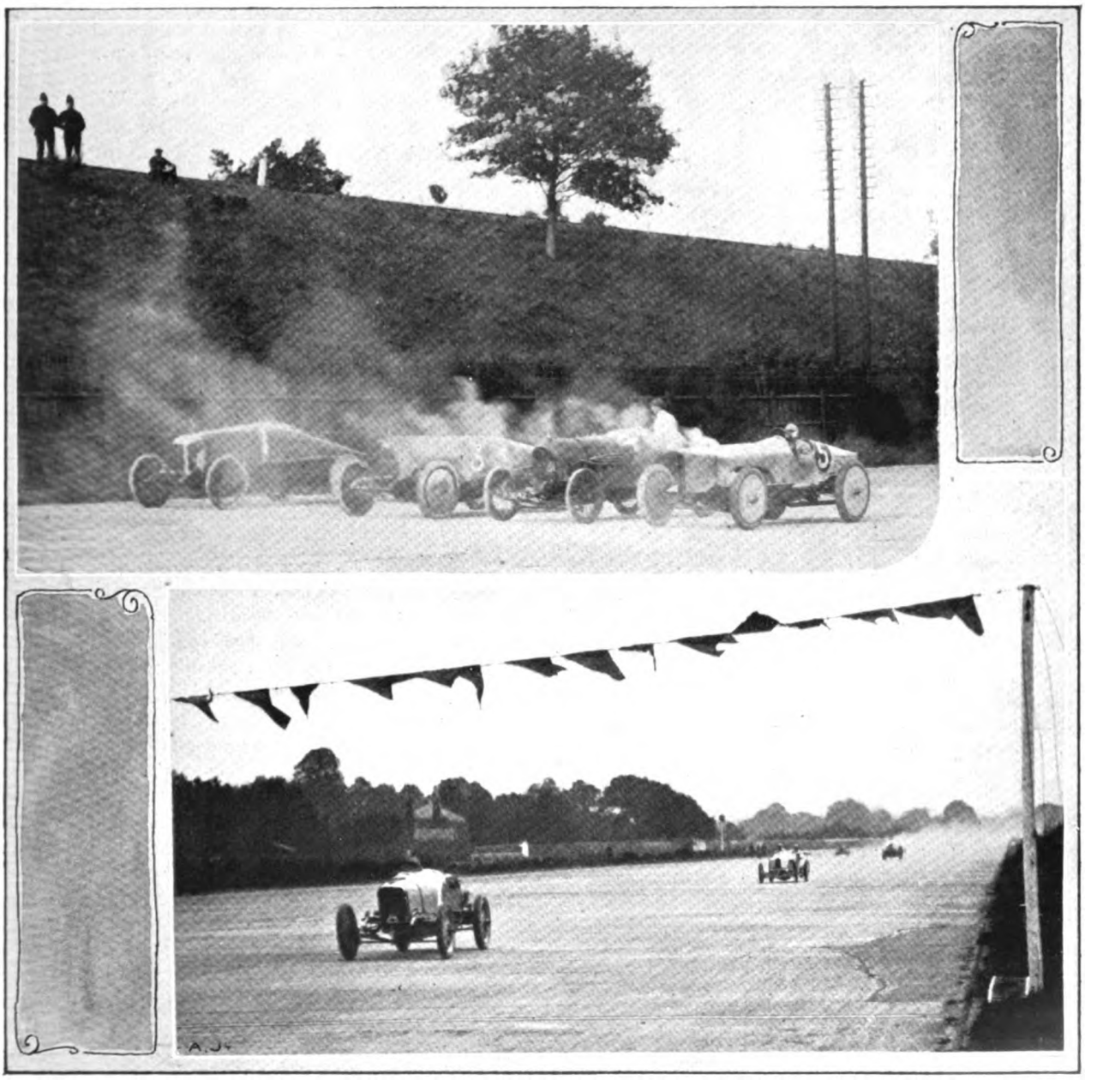
75. F. M. Henry. Combined sectional tyres and wheel rims.
1,656. E. Aron. Wind-screens.
6,712. R. Ghesquiere. Spring wheels.
7,266. E. Brandt. Suspension.
7,569. F. Forest. Variable-speed friction-gearing.

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The AUTO
-MOTOR JOURNAL.

The Motorist's Journal and Directory.

No. 613. (No. 40, Vol. XVII.) | OCTOBER 5, 1912. | [Weekly, Price 3d. Post Free, 3½d.



Ready for the start for the O'Gorman Trophy at Brooklands last Saturday, where "Robert," although a watcher, times not. From left to right: Mr. H. C. Lambert's 15·9-h.p. Singer, Mr. H. M. Bowden's 13·9-h.p. F.A.B. (driver Mr. Coosemans), and Mr. P. C. Kidner's 20·1-h.p. Vauxhall, driven by Mr. A. J. Hancock. Below, the finish by Mr. C. A. Bird on his 15·9-h.p. Sunbeam car in the Ninth 100 m.p.h. Short Handicap.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

EDITORIAL AND GENERAL OFFICES:
44, ST. MARTIN'S LANE, LONDON, W.C.
Telegrams: "TRUDITUR," London.
Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
	s. d	s. d.		s. d.	s. d.
United Kingdom	3 6	7 0	United Kingdom	7 0	14 0
Abroad	6 6	13 0	Abroad	10 0	20 0

Remittances.

Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

The R.A.C. and the Road Board.

In the "Report of the Week" issued by the R.A.C. dated 28th ult. there appears a paragraph dealing with the subject of "The Roads," which enunciates views to which we have never been able to subscribe. Dealing with the Richmond Conference of the Western London Borough Councils, the official view of the Club appears to be that local councils ought to be consulted as to the routes along which motor omnibuses shall ply, subject to the right of appeal to the Board of Trade or some other high authority. On this first point we disagree with the Club, though we should be all in favour of the constitution of some central and independent traffic authority which should have power to define and control, among other things, the public service routes of the metropolis. However, this is really a question of subsidiary importance to the motorist, and we do not propose to argue the point out at length. Following on this expression of R.A.C. opinion, however, is the subjoined paragraph:

"The delegates at Richmond were not sparing in their criticism of the Road Board, and their complaints as to the central highway authority's employment of its fund showed how very wise were the drafters of the Finance Act in making it quite clear that the Board's money was not to be spent in relieving the rates by maintaining (as distinct from improving) the roads. Most of us had a shrewd suspicion that the local highway authorities would do everything in their power to persuade the Road Board to perform the ratepayers' work with the motorists' money, and last week we were afforded evidence of how keen was their disappointment in their failure to make automobilists find the money to maintain the road surfaces in a fit state for the running of vehicles which confer a very real benefit on the public at large."

To this we certainly dissent strongly. While we are jealously in favour of drawing a rigid line between works of improvement and maintenance proper, we think that the work to which reference is made in the paragraph quoted from the report may be distinctly one of "improvement" and from that point of view a fit and proper channel for the spending of the Road Board's funds. In the days before the advent of the motor vehicle and particularly of the motor 'bus and other heavy mechanical traffic, the roads were laid down with foundations which were adequate to carry the traffic of the time and thus it may well be conceded that the authorities did their duty by the traffic in providing it with adequate roadways and by the ratepayers in keeping the expense down within the limits of efficiency. Now, however, a class of fast, heavy traffic has come into being for whose needs the roads were never designed, and the authorities are now up against the proposition of so *improving* those roads as to render them capable of carrying this latter-day traffic. From that point of view the question is not one of maintenance at all, but of "improvement" within the meaning of the Development Act. It is surely as much a work of improvement as the rounding off of dangerous corners, because each is purely and simply a matter of rendering a particular highway suitable to the needs of the new traffic it has to carry. The question of maintenance comes afterwards, when the work of improvement has been completed—then the local authority is charged with maintaining the road in that state of suitability for its traffic conditions into which it has been "improved" at the expense of the Road Board. It seems to us that someone has gone wrong in his definitions.

* * *

The Tramways Imbroglio.

Consternation at the successful competition of the motor omnibus with the tramcar has been the dominant note of the discussions which have taken place at the Annual Conference of the Municipal Tramways Association at West Ham. Not one single delegate but has expressed himself in terms of pessimism in the matter of the

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relations between the two forms of traffic, and not one has had any remedy to advance but the extremely simple one of taxing the motor 'bus off the roads. It has not been said in so many words, but if language has any meaning at all this is what it amounts to in the end. The L.C.C. and various other municipal bodies, regardless of the warnings that have been given to them during years past, have gone feverishly ahead with tramway extensions, each one more commercially hopeless than the last in the light of dawning competition, and now, finding that the battle is hopeless, they want, ignoring the convenience of the travelling public and the transparent moral of the position, to bolster up an anachronism by setting a ruinous tax on progress. The feelings of the Conference are amply indicated by an extract from a condensed report of the proceedings appearing in a daily contemporary: "In the Metropolitan area the tramway undertakings, which had spent hundreds of thousands of pounds in road widenings and improvements, were now faced with an exceedingly keen motor omnibus competition, which selects only such routes as are of a distinctly remunerative character, and which has no moral responsibility in the direction of providing facilities that are requisite though not remunerative. If competition is to exist on the highways for the conveyance of the public all such means of traction should pay a proportionate cost of road maintenance, should be rated on similar lines, and should be governed by similar public regulations."

This seems to sum up the tramways' point of view pretty accurately—from the municipal tramways' proprietorial standpoint at least. Now, let us see how it all works out. First of all, we are told that the municipalities have spent much money in street widenings and improvements, to be debited to the accounts of their tramways enterprises. Many of these improvements were admittedly necessary, irrespective of the tramways, and would have had to be undertaken in any case. In others they were necessary in order to enable the tramways to be constructed at all, which is one of the manifest disabilities of a system which requires a permanent track and whose vehicles are devoid of route flexibility. The motor omnibus, on the other hand, takes its routes as it finds them. It asks for no widenings or improvements, for where any other form of traffic can go it can find its own route. Surely that is simply an inherent advantage of an improved form of street traction which should be encouraged rather than penalised.

Next, we have the complaint that the motor omnibus companies choose only such routes for their services as are likely to prove commercially remunerative. Heavens! What a crime! Why, we had always understood, when tramway authorities were appealing for powers to plant their unsightly lines and trolley-standards along the public highways that one of the justifications for making the streets hideous and dangerous was that, additionally to serving the public convenience, they were to make money for the relief of the long-suffering ratepayer. It is something to have the admission tacitly laid down that the millions of money which are sunk in tramway enterprises have been invested in the sacred cause of philanthropy and not in any sense with an eye to commercial value. The touch about the "moral responsibility" of running services that cannot pay because possibly a dozen people a week want to travel from nowhere to the back of beyond almost excites our laughter, but that the position strikes us as being too much on the pathetic side for amusement.

Complaints Against Motor 'Bus Traffic.

More than one speaker at the Conference held forth about the numberless complaints alleged to have been received from suffering residents in their districts, relative to the terrors of motor 'bus traffic. Vibration, noise, dust, and consequent deprivation of rest and depreciation of property are the charges levelled against the arch-enemy of the tramcar. Why, we wonder, do we hear nothing of the same disabilities which the electric tram carries with it? We should like to wager that of the two the tramcar is by far the worst offender of the two in each of these directions. In the matter of noise the tram is an easy first, while as a dust-raiser it has the motor 'bus beaten at every point. The vibration bogey we do not believe in at all, so we are content to acquit both types of at least the cardinal sin of bringing peoples' houses about their ears. Depreciation of property possibly in some few cases does follow upon the opening of new routes by motor 'buses; in the case of the tram the depreciation is distinct and marked, and this applies to all urban districts in which through traffic facilities are introduced. The tendency of the times is all for the people to live as far out from the centre of London as possible, and the more this tendency is cultivated the more must residential property depreciate within the inner ring. Irrespective of trams or motor 'buses, we have seen this progressive depreciation in property values at work for many years. Districts which twenty years ago were good class residential areas have now fallen from their high estate, and houses which were once inhabited by well-to-do business or professional men are now let out in tenements. The simple explanation is that the people who can afford to live farther out have taken a natural advantage of improved means of transit—whether by railway, tube, motor 'bus, or tramway matters not. To balance this depreciation in residential property, although we admit we have no figures to confirm the view, we should say that in very many cases the utilisation of main thoroughfares for motor 'bus and tramway routes has actually resulted in the appreciation of business premises along the lines of route by making them more easy of access. However that may be, we cannot sit quietly by and see *all* the blame for every adverse circumstance laid at the door of the motor vehicle. If public service traction is really guilty of all the heinous crimes laid at its door, then each type must bear its proper share of the odium. The tramway advocates should remember that what is sauce for the goose is sauce for the gander.

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Summing up the Situation.

In our contemporary, the *Evening News*, of the 26th ult., there appeared a leading article under the heading of "The 'Progressive' Ostrich," in which some very pertinent advice is given to the municipal bodies which have committed London to its present costly tramway enterprises. In this ably-written article our contemporary says:

"We do not mean to say that electric tramways are dead and done for, but we do say that great and increasing competition from the motor omnibus has to be reckoned with, and that to shut our eyes to the danger is simply the rankest folly. . . . There was a strong disposition at the Conference to charge the motor omnibus companies with not playing the game fairly. Because Mr. Lloyd George's Road Board is taking the proceeds of the petrol tax and sitting on the money, the omnibus companies are said to be paying nothing towards the upkeep of the roads to which they do so much damage, but this is not really true. They pay a large sum—whether sufficiently large is certainly a subject for strict enquiry—but it is not applied to the purpose for which it is generally supposed to be paid.

"Further, it was said that 'they selected only such routes as were of a distinctly remunerative character, and had no moral responsibility in the direction of providing facilities that are requisite though not remunerative.' That, of course, is quite true. The London County Council has deliberately undertaken enterprises which never had the remotest chance of paying, and which entail great expense on the ratepayers, and it carries millions of passengers annually at a dead loss, which means that the workman in Shepherd's Bush pays higher rates in order that his brother at Tooting may travel cheaply.

"Our London County Council tramways are not run on business lines; they are run, we are told, for the public convenience, while the motor omnibus companies only convenience those who are willing to pay for the privilege. Only too often that means that to the tramways is left the unremunerative part of the business, while the remunerative part has to be shared with the motor omnibuses. . . . Unfortunately, in London, we have allowed a great corporation to attain a powerful position, simply because we were too blind to see what was coming. But to pretend, now that the motor omnibus has arrived, that it is not really here is a much greater and more dangerous error."

All this is very much along the lines upon which we have written from the very first. What is to be done to save the twelve millions of ratepayers' money which a fatuous policy has sunk in a ruinous enterprise is not a matter upon which we care to make any pronouncement, nor do we flatter ourselves that it would weigh much with the amateur legislators of Spring Gardens if we did. Besides, the question has become one of economics with which it is outside our province to deal, and we can only content ourselves with pointing out the apparently hopeless position in which the advent of the motor 'bus has driven its older competitor. As a matter of fact, it seems to us to resolve itself into a simple matter of the survival of the fittest, and from that point of view it seems self-evident that the electric tramway must fall victim to the natural law.

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The Press and Motor Accidents.

For some reason or other the lay Press seems to be reverting to the methods of earlier days in giving exaggerated publicity to every case of street accident in which the motor vehicle happens to be concerned. Unless at the same time those journals which appear to endeavour to give the touch of sensationalism to every motor accident, serious or not, will take equal pains to collect and collate the statistics of every other street accident so that a fair comparison may be made, it does not seem as though they were playing the game fairly. However, it is a complaint that we have often had cause to make, and we shall probably go on complaining to the end of things. At the same time there is no avoiding the conclusion that there are far too many serious accidents, and we are not at all certain that we should give our vote against the proposal of the *Medical Press and Circular*, which in the course of a somewhat intemperately-worded article suggests that a Select Committee should be appointed by Parliament to enquire into the whole question. The result of such an enquiry would in all probability be to show that the majority of running-down accidents were due to causes entirely beyond the control of the motor driver. In this connection it is interesting to quote the remarks of the Battersea Coroner at a recent inquest concerning a case in which a woman was knocked down and killed by a motor 'bus. He gave it as his opinion that a large number of the accidents that came before coroners were not due to the carelessness of drivers at all, but in the majority of cases a pedestrian got into the middle of the street, became excited, and stepped back into danger. That this is an absolutely correct statement of the case is quite adequately shown by the verdicts returned by coroners' juries in running-down cases, in 99 per cent. of which the driver is exonerated from blame. Coroners' juries are not, as a rule, drawn from a class which takes too lenient a view of the motorist and his vehicle. On the contrary, they, as a class, are much more disposed to give the benefit of the doubt to the non-motorist, and hence it may be taken as a proved proposition that when a jury agrees that no blame attaches to the motor driver, there is every ground for his exoneration. We have on previous occasions pointed out that the enormous change which has come over the traffic of the metropolis must inevitably affect every class which contributes to its volume, pedestrian as well as vehicle, and the sooner this is realised, and the *whole* subject of traffic regulation tackled in earnest, the sooner will the awful tale of accidents recorded year by year tend to show a diminution. No doubt it is difficult to contemplate the regulation of pedestrian traffic—it looks too much like interference with the liberty of the subject—but in the interests of the pedestrian himself, if for no other or more scientific reason, it must come to that before many years are past.

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Mr. Stenson Cooke Better.

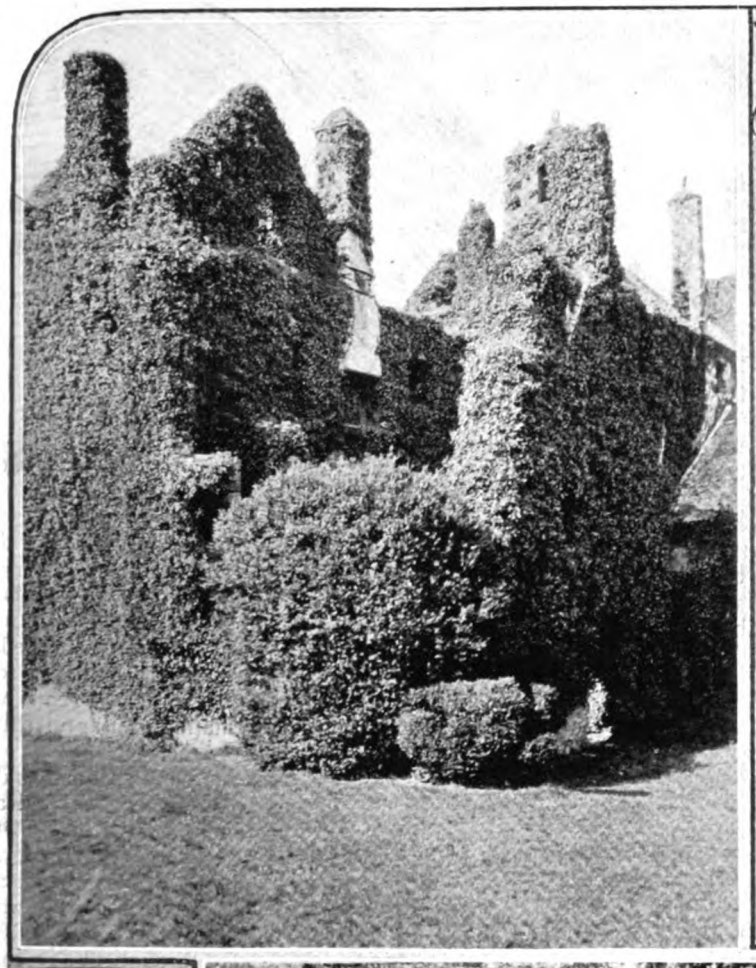
IT is good news to hear that Mr. Stenson Cooke, the popular A.A. and M.U. Secretary, is making good progress. There have been no complications, and the doctors have promised that in a few days he may *think* about being moved to the office.

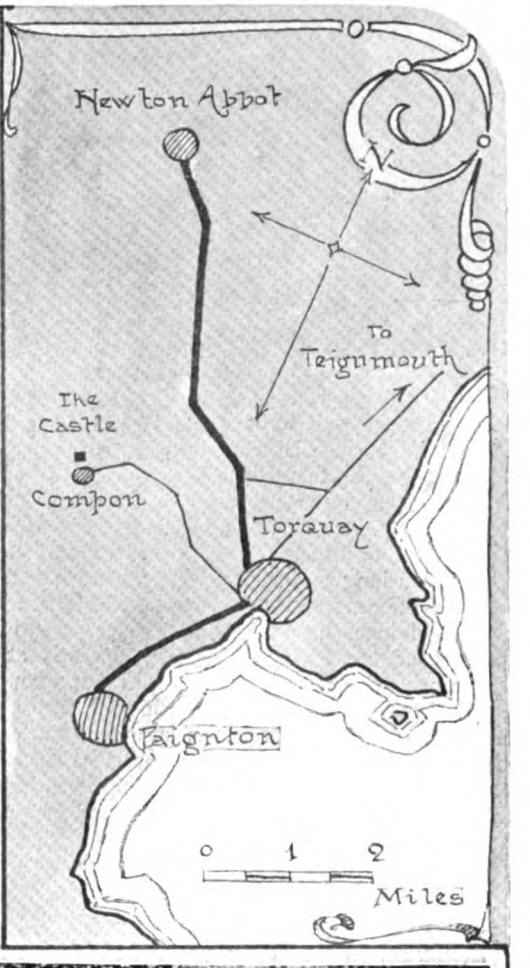
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For Garages Open Sundays, see "Auto." Guide every week.

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With the Camera and the Car.







THE RUINS OF COMPTON CASTLE, NEAR TORQUAY.—Built in the reign of William I, but enlarged as it passed through the hands of various owners, one of these being the family of Sir Humphrey Gilbert—the discoverer of Newfoundland—and his half-brother, Sir Walter Raleigh. There was no moat, a subterranean passage being provided for escape in time of trouble, but apparently the so-called castle was never engaged in warfare to any extent.

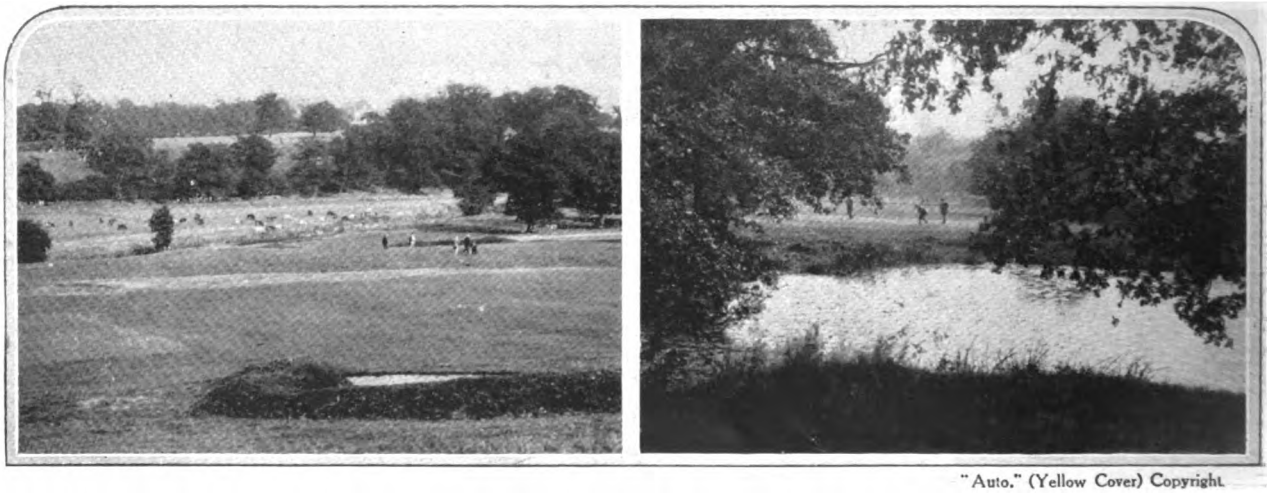
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Two years ago I went to Coventry to play in the competition for the Dunlop Trophy—and I cannot say I liked it. Again this year I journeyed to the City of the Three Spires, once more intent upon annexing the coveted trophy, and I liked it so much that if I can only induce one or other of my Coventry friends to ask me down for a long week-end's golf I shall most certainly not risk offending them by a refusal. There is reason for the change of opinion, for two years ago the head-quarters of the Coventry Golf Club was at Whitley Common, over which had been laid out a course which its admirers described as "sporting" but which a good many of us who went there as strangers called by quite another adjective. I well remember that it was my luck to get a nondescript something calling itself a caddy but which knew as little about the geography of the course as I did, and between us we had no end of difficulty in finding the tees. There were no tee-boxes—the sand was contained in holes dug in the ground—so there was nothing to mark the tees at all, and I had quite a merry time finding my way round. I asked a prominent member why there were no boxes on the tees, and his reply was quite convincing: "If we put them down they'd be all stolen first night out!" Then, on the day we played for the Dunlop Trophy, I should say that every loafer in Coventry was out on the course, looking for stray balls—I know the round cost me five brand new Dunlops, one of which I bought back from the loafer who "found" it when I happened to look the other way. But it was not bad golf all the same, and I have played on courses which, as courses, I like a lot less than the old one at Coventry.

A year since, however, the Coventry G.C. came into possession of its new course at Finham Park, situated some three miles out on the Leamington road, amid as lovely rural scenery as can be found in that part of Warwickshire. And the club has entered upon a course which will, when it is matured, be as good an inland course as the most fastidious golfer could desire. At present it is hardly completed—more bunkers are needed, and the greens are a long way from perfect—but even so it is well ahead of many others which have had years of start. As a matter of fact, it is simply wonderful that the club has done what it has in the time.

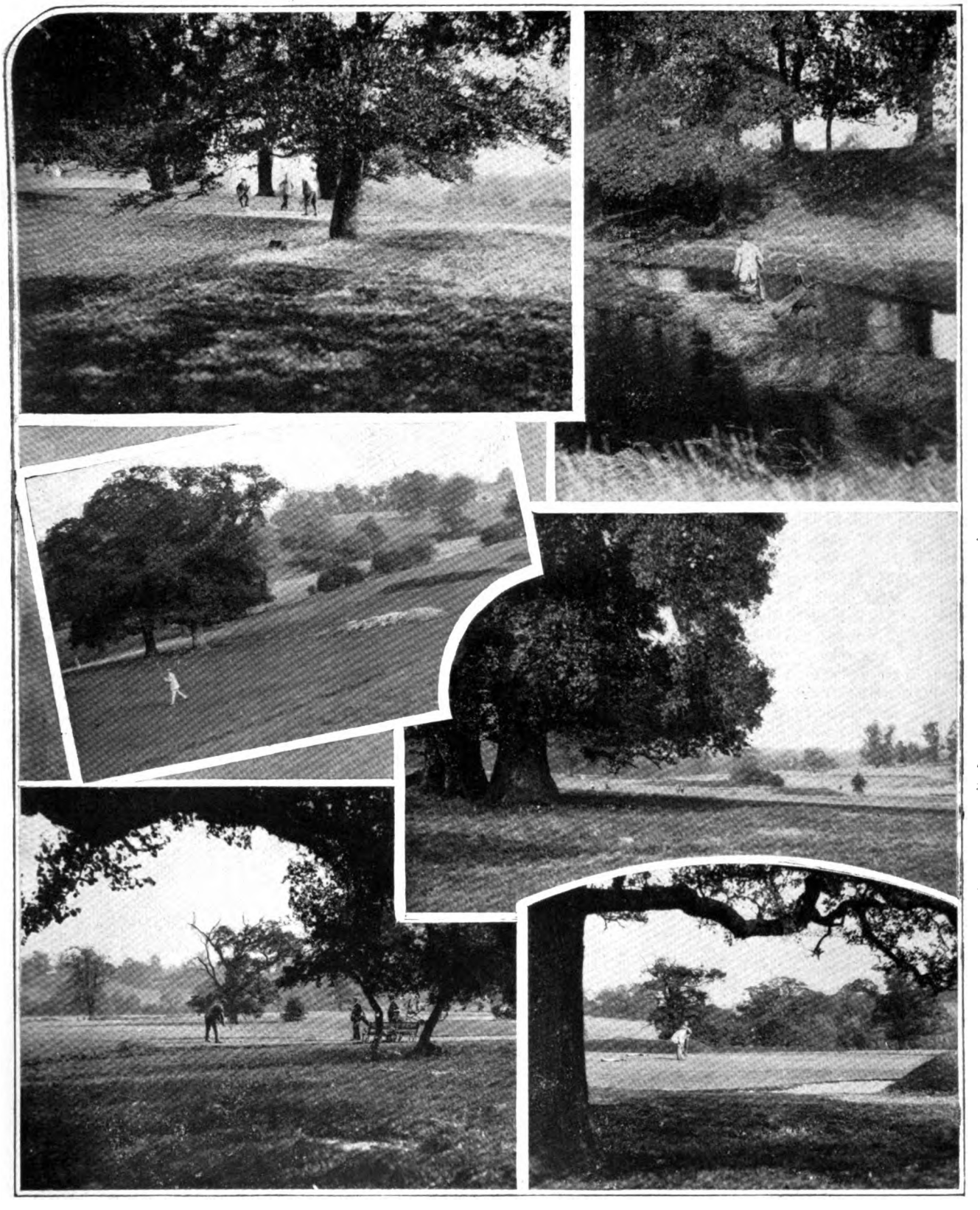
Apart from its natural attractions of scenery and environment, it is a course where the golfer will find a good deal to interest him, and I am not sure but what much of its attractiveness is due to its very immaturity. As I have said, more bunkers are needed to make it a course of average difficulty, but they are to be put down during the coming winter, and in the meantime the character of the ground, and the lies through the green, while never bad, are often difficult enough to call for all one's golfing skill to successfully negotiate them, make up in some measure for the absence of artificial hazards. There are two or three quite sporting holes, too, which are well worth playing. The seventeenth, for example, lies across a deep and mesmeric pond, and in playing it for the first time one cannot decide off-hand whether a full mashie shot will take one safely over the



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FOR THE DUNLOP GOLF TROPHY AT COVENTRY.—A pretty view across the 7th tee, and the pond hazard with 15th green beyond.

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FOR THE DUNLOP GOLF TROPHY AT COVENTRY.—From left to right, and from the top: On the 17th tee, where much trouble is found. The pond at the 17th. The cross bunkers approaching the 6th green. Looking down the course from the 5th tee. Driving from the 5th tee. Holing out on the 11th green.

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trouble and on to the green or whether a more powerful club should be taken. As a matter of fact, it is a good mashie when one gets it figured out, but I like a hole that sets one thinking out the shot. Then there is the thirteenth, not at all difficult, but at which a pulled drive lands one in the river, while a sliced shot lies among about the toughest kind of rough grass out of which I ever played a niblick shot. Nothing but this most useful club will get a ball out of the real tough stuff anywhere on the course.

The ninth, again, is another simple looking hole. Just a full drive and a short pitch on to the green, but as the latter is planted on top of a little plateau of its own, sloping away down on all four sides, it wants a well-judged approach to keep the ball on the green. But there is not a bad hole on the course, which is about the highest compliment that can be paid it. If it does not rapidly become one of the most popular courses in the Midlands it will meet with a lot less appreciation than it deserves.

The new course has already been made famous, as indeed I have already indicated, by the holding on Friday of last week of the competition for the Dunlop Trophy and the "Championship of the Cycle and Motor Trades" —I don't know what Hamilton Hobson and the Automobile Golfing Society will say to this. So far as I am concerned, it was a very pleasant day out, but as for interest in the competition—well, I lost and quite early in the day. But then to be "ditched" by a chauffeur on the way out to the course is not the very best thing for one's golf. However, this is merely personal, and I am rather more concerned with the "Championship" at the moment. It is quite eloquent of the hold the game has obtained among the *personnel* of the two trades that there were over a hundred entrants, most of whom put in an appearance, and there was some really excellent golf played. Incidentally, though, I do think that some of us were handicapped by having to play on an utterly strange course without caddies, but for that we have to blame the Chancellor of the Exchequer—bless him! The committee had, quite rightly as I think, cleared out all the boys over 16, so as to avoid payment of the Insurance Tax, but, as I say, it did not help those of us who came late and failed to secure caddies.

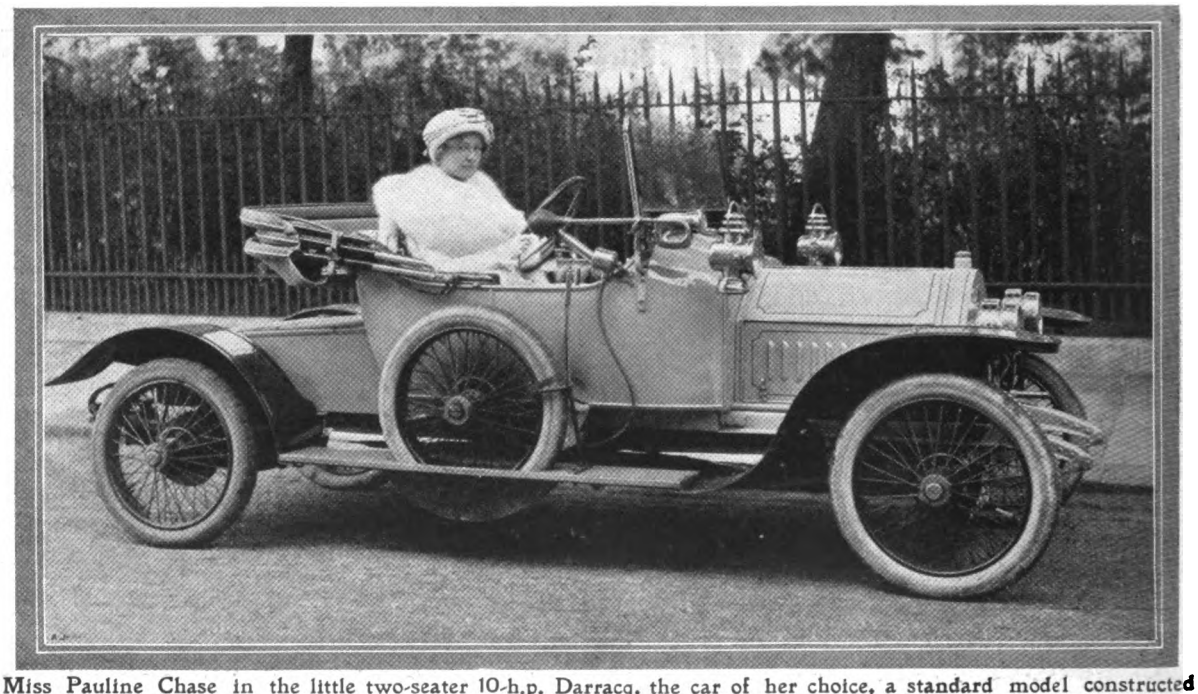
When the results became known it was found that for the second time the winner was Mr. C. G. Peart, of Rudge-Whitworth, a fine, steady golfer from Birmingham, his card reading 84 – 6 = 78. Mr. L. G. Miles, a Coventry player, was adjudged "Champion of the Trades," with an excellent gross score of 82. He is a three-handicap player, so that he only missed a tie for the trophy by one stroke.

In the evening a very merry dinner was held at the Masonic Hall, Coventry, with Mr. Arthur Brampton, J.P., in the chair, at which Mr. Arthur Du Cros, M.P., presented the prizes won during the day. Unfortunately I had to leave early, so I don't know quite what happened during the evening, but things looked very promising indeed. The more I play what I may call motor trade golf the more I am impressed by the thoroughgoing sportsmanship and *camararderie* of those who, in their business hours, are building up a great industry. Truly it is a wonderful game and a friendly.

By way of making the thing complete, I append a list of the prize winners and their scores :—

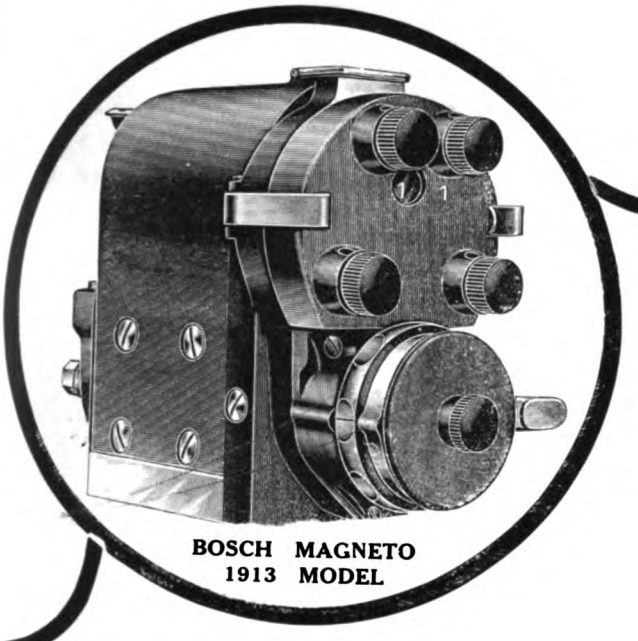
Champion of Cycle and Motor Trades—		
Gold medal	L. G. B. Miles, Coventry	82— 3=79
Dunlop Cup	C. G. Peart, Birmingham	84— 6=78
Miniature Cup—		
Lowest net score. 10 handicap and over...	H. C. Myers, York ...	91—12=79
2nd lowest gross score	C. W. Collier, Leeds ...	83— 2=81
2nd lowest net score ...	H. C. Church, Birmingham	89— 9=80
Lowest net score under 10 handicap	C. D. Pole, Coventry ...	87— 4=83
	Cecil Hill, Coventry ...	86— 3=83
Lowest net score 10 handicap and over...	Charles Jarrott, London...	99—18=81
Lowest net score 10 handicap and over...	T.W. Niblett, Birmingham	94—13=81
Wooden spoon ...	J. Bailey, Birmingham ...	147 net

W. W.



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4.—Won 4 Prizes out of 9 at the Lancs. A. C. Reliability Trials, and the Large Gold Medal at the German Voiturette Trials.

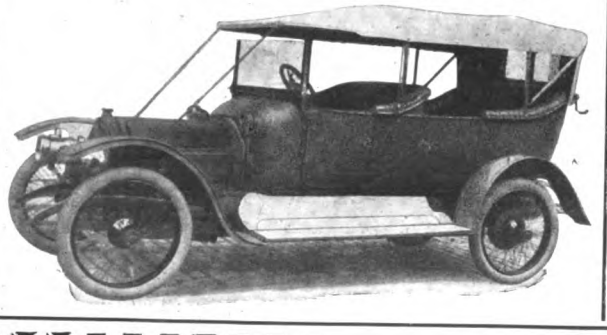
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SUCCESSFUL CONCLUSION OF BROOKLANDS SEASON.

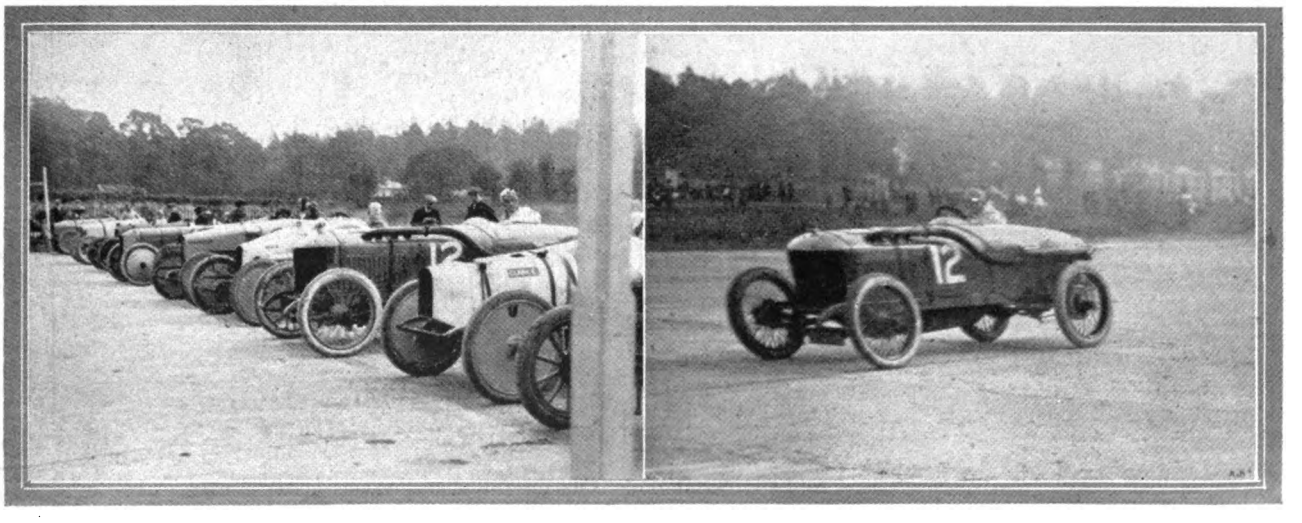
VAUXHALLS AGAIN CAPTURE THE O'GORMAN TROPHY.
HIGH SPEEDS AND SPLENDID HANDICAPPING.

Favoured by its proverbial fine weather, the Brooklands Automobile Racing Club wound up its 1912 season with a very successful and interesting race meeting last Saturday. Many thousands of spectators, many of whom must have travelled a considerable distance, if we may judge by their north country dialect, were present and paddock and enclosures were well filled, much better than is usual at a last meeting of a season. The fact that the race for the O'Gorman Trophy was included in an already interesting programme may be responsible for the increased attendance on the part of the public. Nor were these visitors disappointed in their expectations, because they were treated to some very fine sport and even those who have a taste for the sensational got their thrill. In the Motor Cycle Race, Mr. E. F. Remington, who came home an easy winner at a speed considerably exceeding 70 m.p.h., was unable to pull up after passing the finishing line owing to the failure of his brake. The horrified spectators saw the man tearing up the banking of the track and disappear over the crest; a few moments afterwards, however, much to the relief of everyone he was seen emerging from the bushes amongst which he had landed, indicating by gestures that he was none the worse for his adventure; his machine, however, was damaged a good deal.

Before we proceed to a description of the racing proper we should like to ask our readers to follow us on a walk round the paddock, because many interesting things were there to be seen. The chief objects that attracted our attention upon arrival were the two Vauxhall cars which were to contest the O'Gorman Trophy, one of which eventually scored a sensational victory at an average speed of 92½ m.p.h.

They looked indeed smart and businesslike in their shining aluminium hulls, and nothing seems to have been left undone to eliminate wind resistance as far as possible. Not only were their radiators encased in wind-cutting shields, but front axle, change speed quadrant, and every other projection had its stream-line casing. Even the head of the steering-push-rod and the radius-rods were drawn out to a fine point. Rumours were floating about that this time Mr. Hancock had excelled himself in getting the very last ounce out of his cars and events proved that thoroughness gets its reward. The Straker-Squire also looked very trim, but trouble seems to have cropped up with the plugs at the eleventh hour, so that the people in charge of the car were kept busy till almost the very last moment. Amongst the other competitors' cars we saw the veteran Austin "Pobble," this time in charge of Mr. Hornsted, whose smiling face was taken by many as a good omen for the success of his car. Although he was not successful in actually winning a race, in the last event of the day he managed to drive her into fourth place, which in this case was only two lengths behind the winner. Mr. S. G. Cummings had brought a 1913 S.C.A.R. model, which had only arrived from France a few days previous and which seems to be a very fast car, but it was beaten by Mr. Cummings' usual hard luck, which this time showed itself in the form of a sooted plug. Further on we noticed a Humber which had taken part in the good old Four Inch Race; the Hon. R. Beckett who bought the car some time ago thought of trying its paces on the track. Another newcomer was the 24·8-h.p. Komnick, which Lord Exmouth had entered for the 100-h.p. Handicap. Mr. Ormond Darby had brought this car by road from the factory in the remotest north-east corner of Germany, and had only arrived with it in this country on the morning of the race day; little wonder, therefore, that the car did not quite do itself justice. We were particularly pleased to see that his alarming accident on August Bank Holiday has not prevented Mr. M. Campbell from again taking the wheel of his 59·6-h.p. Darracq, "Blue Bird." Neither driver nor car looked any the worse for their experiences on that occasion.

All the races were well fought out, and produced close finishes, with the only exception of the O'Gorman Trophy. The rumours as to the speed of the two



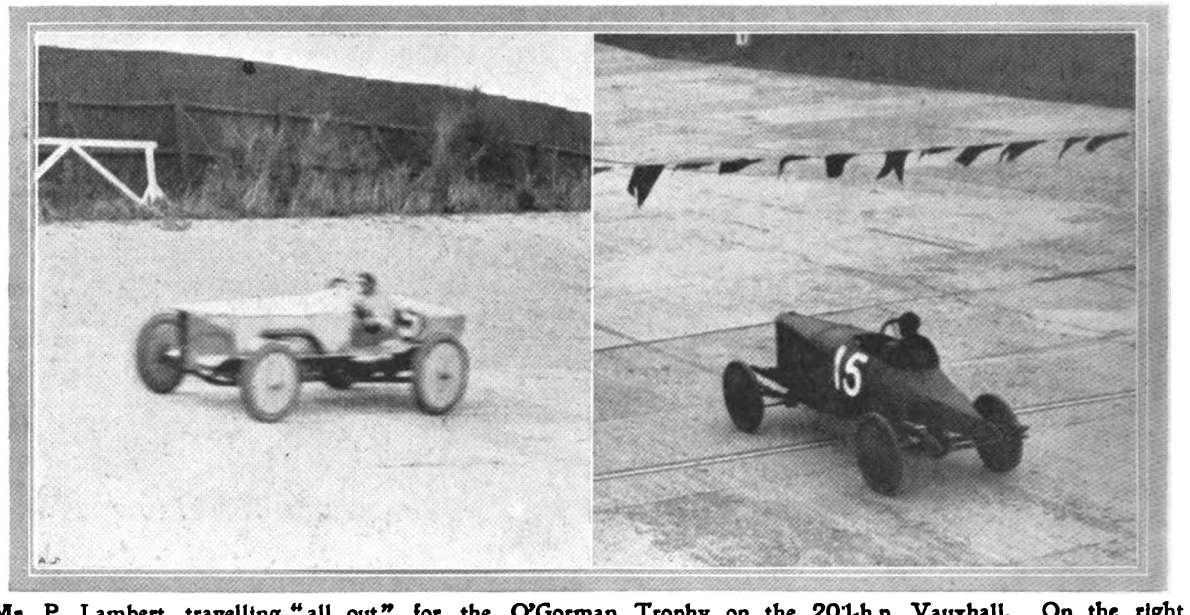
The start for the September Private Competitors' Handicap at Brooklands, and on the right Mr. W. R. McBain, the winner, on his 15·9-h.p. Delage.

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Vauxhalls seemed only too well founded, because no sooner had the starter dropped his flag than the pair of Vauxhalls simply waltzed away from the field. Their acceleration was marvellous, and they seemed to be at the end of the straight before the others had, so to speak, made up their minds to go at all. It was chiefly their enormous acceleration that won the race for the Vauxhall, because they were able to establish a lead of very nearly three-quarters of a lap during the first three rounds, but once the Straker-Squire and the two Singers got going, they, especially the former, reduced the gap that separated them from the leaders to some considerable extent. The lead, however, was too much for any of them, but their hopes revived when halfway through the race Hancock's Vauxhall, which had been closely following the leader, steered by "Pearley" Lambert, was seen to lose ground and finally to stop altogether. A leak in the radiator had smothered the magneto and put the car out of the running. Lambert, however, after travelling his first four laps at well over 95 m.p.h. kept going in splendid style; noticing his enormous lead he reduced his speed somewhat and finally came home an easy winner at an average speed of 92½ m.p.h. It is much to be regretted that the electrical timing apparatus was not used for timing this race, because we feel sure that Mr. Lambert beat quite a number of records during this run. For instance, the ten-lap record for the 21-h.p., 26-h.p. and 40-h.p. Brooklands Standard Classes are all less than the speed attained by Mr. Lambert, while the ten-lap record for the cubic capacity Class E only stands at 78·09 m.p.h. Fine as Mr. Lambert's driving undoubtedly was right through the race, his pulling the car up was finer still, and for anyone who has an idea of what it means to bring a car travelling at nearly 100 m.p.h. to a standstill, his pulling up almost at the foot of the slope was a spectacle not easily to be forgotten. If such a proof were necessary, Mr. Lambert by thus stopping his car proved himself to be classed amongst the most skilful drivers ever seen on the track. Although he was tearing down the straight all out, he had his car well in hand when passing the paddock, and he came to almost a dead stop half-way up the slope. Quite modestly at walking pace he took his car round the corner into the main track close to the near-side edge and well out of the way of the other competitors, who were still going. In doing so he set a splendid example which many of the other Brooklands drivers would do well to follow. After the Vauxhall's victory, everybody was looking for the Straker-Squire, which, under the able guidance of Mr. R. S. Witchell, had made up a good deal of ground during the second half of the race, and was now lying second; but all the hopes of his supporters were shattered when, instead of turning into the finishing straight, the car was seen passing the fork and going for another lap. Second place thus fell to Mr. G. Tysoe on a 15·9-h.p. Singer, who had driven a very consistent race, but was handicapped through having a very much smaller engine than the two leaders. The Straker, however, managed to get in third just in front of the indefatigable Mr. C. L. E. Geach on the other Singer. The other two runners had dropped out earlier.

An outstanding feature of the other races was the handicapping, and our congratulations are due to Mr. Ebbelwhite, the much-abused handicapper, who occupies, perhaps, the most thankless position amongst the officials on the track. But the sprint race was a veritable triumph for him. The whole field of twelve cars came tearing down the straight all in a bunch; there were certainly not more than a hundred yards that separated the first from the last car at the moment of victory. Indeed, the first four cars crossed the line so close together that from the Press stand it was quite impossible to say which was first.

No two pressmen could agree as to the order in which the cars passed the line, because by the time they reached the press stand they had changed their order considerably. At first it was believed that Mr. Lacon, on his Gregoire, was the winner, with Mr. Hind, on the Berliet, a close second, but the decision of the judge as announced on the board awarded the race to Mr. Hind, who, in fact, was nearly a length ahead of the Gregoire



Mr. P. Lambert travelling "all out" for the O'Gorman Trophy on the 20·1-h.p. Vauxhall. On the right Mr. H. J. Dew on Mr. F. B. Goodchild's 15·9-h.p. Oryx car winning in the Eighth 70 m.p.h. Long Handicap at Brooklands on Saturday, as seen from the Press stand.

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when crossing the line. Mr. Campbell on the "Blue Bird," Darracq was an excellent third with Mr. Hornsted on the Austin "Pobble" only inches behind. Two or three seconds after the winner the whole of the field had passed the judge, who had by no means an easy task to perform in this case. Finally, as it were in the nick of time, two little cars which had been running well, but so far unsuccessfully in almost every race meeting of the past season succeeded in capturing a race for their persistent owners who, thus encouraged, will surely continue to run their cars next year. One of these, Mr. C. A. G. O'Malley's 11·5 M.A.F. car with its little air cooled engine of but 68 by 92 mm., driven by Mr. F. Weber, won the 70 m.p.h. Short Handicap at a speed of 48¼ m.p.h., while the 70 m.p.h. Long Handicap was won by Mr. F. B. Goodchild's 13·9-h.p. Oryx, driven by Mr. H. J. Dew at an average speed of 59¾ m.p.h.

The objection which had been raised against the winner of the Motor Cycle Race for not pulling up within the black line was eventually upheld by the stewards and the race awarded to L. Hill, riding a Rudge machine.

RESULTS.

The September Private Competitors' Handicap. 5¾ miles.

The entrant of the winner to receive a cup, value £20; the entrant of the second a cup, value £12 10s.; and the entrant of the third a cup, value £7 10s.

Place.	Driver and Car.	Cylinder. Bore and Stroke. mm.	Capacity. cc.	Start. m. s.
1.	W. R. McBain (15·9-h.p. Delage) ...	80 × 149	2,996	1 18
2.	Lord Exmouth (15·9-h.p. Hispano-Suiza)...	80 × 180	3,619	0156
3.	C. A. Bird (15·9-h.p. Sunbeam) ...	80 × 149	2,996	0 16

Also ran: McL. N. Staight (15·9-h.p. S.C.A.R. "Maraquita") 80 × 140 mm., 2,815 cc., 1 m. 6 s.; M. Campbell (59·6-h.p. Darracq), 155 × 140 mm., 10,567 cc., scratch; S. F. B. Lacon (15·9-h.p. Gregoire), 80 × 149 mm., 2,996 cc., 46 s.; W. S. Newton-Clare (8·9-h.p. Sizaire), 120 × 140 mm., 1,583 cc., 2 m. 46 s.; L. J. Cadbury (20·1-h.p. Vauxhall), 90 × 120 mm., 3,054 cc., 50 s.; Hon. R. Beckett (25·6-h.p. Humber), 101 × 160 mm., 5,128 cc., 1 m. 2 s.; E. T. Newton-Clare (9-h.p. Lion-Peugeot), 85 × 150 mm., 1,702 cc., 1 m. 42 s.; O. D. Pollak (15·9-h.p. S.C.A.R. "Mud"), 80 × 140 mm., 2,815 cc., 1 m. 14 s.

Good handicapping led to an exciting finish. The Delage was going splendidly, but only just managed to cross the line a few lengths in front of Lord Exmouth's Hispano, which was running magnificently, and had been fancied by many people as the likely winner. Mr. Bird, on his Sunbeam, was a good third, with Mr. Campbell's Darracq close up. The rest followed in intervals of 100 yards or so. Winner's speed 66½ m.p.h.

The Twelfth Short Motor Cycle Race. 5¾ miles.

The entrant of the winner to receive £10, or cup at option; the entrant of the second £5, or cup at option; and the entrant of the third £3, or cup at option. For all classes of motor bicycles.

Place.	Rider and machine.	mm.	cc.	m. s.
1.	L. Hill (Rudge)	85 × 88	499	0 42
2.	W. H. Elce (Rudge)	85 × 88	499	0 42
3.	S. L. Bailey (Douglas)	60 × 61	349	1 4
4.	H. H. Square (Robin Minerva) ...	69 × 69	258	3 0
5.	W. Jacobs (Singer)	69 × 80	294	1 56

A well contested and very fast race which was actually won by E. F. Remington on a Matchless. He was, however, disqualified for not pulling up within the black line. 23 started. Winner's speed, 73¾ m.p.h.

The Fourth Race for the O'Gorman Trophy. 30 miles.

(Presented by Mr. Mervyn O'Gorman.) Present holder: Mr. P. C. Kidner. The entrant of the winner to hold the Trophy and to receive a cup, value £20; the entrant of the second a cup, value £10; and the entrant of the third a cup, value £5.

Place.	Driver and Car.	mm.	cc.
1.	Percy Lambert (20·1-h.p. Vauxhall) ...	89·7 × 118	2,983
2.	G. Tysoe (15·9-h.p. Singer)	80 × 142	2,855
3.	R. S. Witchell (18·8-h.p. Straker-Squire)	87 × 120	2,853
4.	C. L. E. Geach (15·9-h.p. Singer) ...	80 × 149	2,996

The above completed the course. Also ran: A. F. Hancock (20·1-h.p. Vauxhall), 89·7 × 118 mm., 2,983 cc.; H. C. Lambert (15·9-h.p. Crossley), 80 × 123 mm., 2,473 cc.; Coosemans (1·39-h.p. F.A.B.), 75 × 120 mm., 2,121 cc.

Lambert and Hancock on the two Vauxhalls got away very smartly, and making the pace very fast right from the beginning, established a lead of more than half a lap. The two Singers quickly followed with the Crossley, the F.A.B. and the Straker-Squire behind. But the latter soon got into its stride, and overtook all but the Vauxhalls. In the fourth lap, Hancock's Vauxhall fell back, and finally retired in the seventh. Meanwhile Witchell on the Straker was lapping at over 93 m.p.h., and slowly decreased Lambert's lead; the latter, however, was too far ahead to be seriously challenged, and finished an easy winner at 92½ m.p.h. Witchell on the Straker did one lap too much, and lost the second place to Tysoe on the Singer, who was half a lap behind; the Straker finally came in third with Geach on the Singer close up.

The Eighth 70 m.p.h. Long Handicap. 8½ miles.

The entrant of the winner to receive a cup, value £25; the entrant of the second a cup, value £12 10s.; and the entrant of the third a cup, value £5. For motor cars propelled by means of internal-combustion engines only, the maximum observed speeds of which are about 70 miles an hour or less for a Brooklands flying lap, or, in the case of cars which had competed before, were not likely, in the opinion of the handicappers, to exceed this speed.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	H. J. Dew (13·9-h.p. Oryx) ...	75 × 96	1,696	2 24
2.	T. B. Andre (8·9-h.p. Marlborough)...	60 × 100	1,131	3 9
3.	H. C. Lambert (15·9-h.p. Crossley)...	80 × 123	2,473	0 15



Lord Exmouth on his 24·8-h.p. Komnick car, which he drove in the Ninth 100 m.p.h. Short Handicap at Brooklands on Saturday. His genial smile when going out for the race.

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Also ran: W. Croote (15·9-h.p. Delage), 80 × 149 mm., 2,996 cc., 33 s.; F. Weber (11·5-h.p. M.A.F.), 68 × 90 mm., 1,307 cc., 3 m. 27 s.; W. T. Smith (13·9-h.p. Stoewer), 75 × 89 mm., 1,929 cc., 51 s.; F. E. Wasling (22·4-h.p. Ford), 3¾ ins. × 4 ins., 2,897 cc., 1 m.; S. G. Cummings (15·9-h.p. S.C.A.R.), 80 × 140 mm., 2,815 cc., 27 s.; C. R. Engley (24·8-h.p. Turcat-Mery), 100 × 130 mm., 4,084 cc., scratch; O. D. Pollak (15·9-h.p. S.C.A.R.), 80 × 140 mm., 2,815 cc., 27 s.; — Coosemans (13·9-h.p. F.A.B.), 75 × 120 mm., 2,121 cc., 45 s.

The only "tame" race of the afternoon. Won by the length of the straight. 200 yards between second and third. Winner's speed 59¼ m.p.h.

The Ninth 100 m.p.h Short Handicap. 5⅝ miles.

The entrant of the winner to receive a cup, value £35; the entrant of the second a cup, value £20; and the entrant of the third a cup, value £15. For motor cars propelled by means of internal-combustion engines only, the observed speeds of which are about 70 miles an hour or more for a Brooklands flying lap, or, in the case of cars which had not competed before, were likely, in the opinion of the handicappers, to exceed this speed.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	C. A. Bird (15·9-h.p. Sunbeam) ...	80 × 149	2,996	0 16
2.	F. W. Brown (48·6-h.p. Mercedes) ...	140 × 150	9,237	0 16
3.	N. S. Hind (35·7-h.p. Berliet) ...	120 × 140	6,334	0 44

Also ran: L. G. Hornsted (36·1-h.p. Austin "Pobble"), 121 × 127 mm., 5,842 cc., 2 secs; G. Tysoe (15·9-h.p. Singer), 80 × 142 mm., 2,885 cc., 16 secs.; C. L. E. Geach (15·9-h.p. Singer), 80 × 149 mm., 2,996 cc., 26 secs.; M. Campbell (59·6-h.p. Darracq), 155 × 140 mm., 10,567 cc., scratch; S. J. B. Lacon (15·9-h.p. Gregoire), 80 × 149 mm., 2,996 cc., 46 secs.; Percy Lambert (20·1-h.p. Vauxhall), 89·7 × 118 mm., 2,983 cc., 2 secs.; A. Borier (16·9-h.p. Schneider), 82½ × 140 mm., 2,994 cc., 16 secs.; Lord Exmouth (24·8-h.p. Komnick), 100 × 140 mm., 4,398 cc., 20 secs.

This was a fine race throughout; four cars started from the 16 secs. mark, and the two leaders, Bird on the Sunbeam and Brown on Gordon Watney's veteran Mercedes, drove a magnificent race. They gradually overtook the field until in the second lap, coming off the Byfleet banking, they had only three cars in front; they managed to overtake even these, but it was a fine sight seeing the five cars come down the straight with only a few lengths between them. Bird, on the Sunbeam, finally won by about 30 yards from Brown (Mercedes), who had beaten Hind's Berliet only a very short distance from home. Hornsted was a good fourth, with Tysoe, on the Singer, close up. Winner's speed, 80⅜ m.p.h.

The Ninth 70 m.p.h. Short Handicap. 3 miles.

The entrant of the winner to receive a cup, value £25; the entrant of the second a cup, value £12 10s.; and the entrant of the third a cup, value £5. For motor cars propelled by means of internal-combustion engines only, the maximum observed speeds of which are about 70 miles an hour or less for a Brooklands flying lap, or, in the case of cars which had not competed before, were not likely, in the opinion of the handicappers, to exceed this speed.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	F. Weber (11·5-h.p. M.A.F.) ...	68 × 90	1,307	1 12
2.	H. C. Lambert (15·9-h.p. Crossley)	80 × 123	2,473	0 8
3.	S. G. Cummings (15·9-h.p. S.C.A.R.)	80 × 140	2,815	0 12

Also ran: T. B. André (8·9-h.p. Marlborough), 60 × 100 mm., 1,131 cc., 1 m. 6 s.; H. J. Dew (13·9-h.p. Oryx), 75 × 96 mm., 1,696 cc., 28 s.; M. Campbell (24·8-h.p. Darracq), 100 × 160 mm., 5,027 cc., 8 s.; O. D. Pollak (15·9-h.p. S.C.A.R.), 80 × 140 mm., 2,815 cc., 12 s.; W. Turner Smith (13·9-h.p. Stoewer), 75 × 89 mm., 1,573 cc., 19 s.; F. E. Wasling (22·4-h.p. Ford), 3¾ ins. × 4 ins., 2,896 cc., 23 s.; R. Winn (22·4-h.p. Ford), 3¾ ins. × 4 ins., 2,896 cc., 14 s.; — Coosemans (13·9-h.p. F.A.B.), 75 × 120 mm., 2,121 cc., 19 s.; C. R. Engley (24·8-h.p. Turcat-Mery), 100 × 130 mm., 4,084 cc., 3 s.; L. J. Cadbury (20·1-h.p. Vauxhall), 90 × 120 mm., 3,054 cc., scratch.

Weber on the M.A.F. got going very well and was never caught, he won by nearly half the length of the straight. Lambert on the Crossley was second, but the next five cars came all in a bunch, with Cummings, on the S.C.A.R., just running into third place, hotly pursued by Campbell on the Darracq. It was rather hard lines on the neat little Marlborough to be passed just before the line. Winner's speed 48¼ m.p.h., not a bad performance for the little air-cooled motor.

The September Sprint Race (a Handicap).

The entrant of the winner to receive a cup, value £30; the entrant of the second a cup, value £15; and the entrant of the third a cup, value £7 10s. For cars which have been timed to do flying laps at Brooklands at about 70 miles an hour, or more, or which were likely, in the opinion of the handicappers, to attain this speed.

Place.	Driver and Car.	mm.	cc.	m. s.
1.	N. S. Hind (35·7-h.p. Berliet) ...	120 × 140	6,334	0 16
2.	S. J. B. Lacon (15·9-h.p. Gregoire)...	80 × 149	2,996	0 16
3.	M. Campbell (24·8-h.p. Darracq) ...	100 × 160	5,027	0 25

Also ran: L. G. Hornsted (36·1-h.p. Austin "Pobble"), 121 × 127 mm., 5,842 cc., scratch; F. W. Brown (48·6-h.p. Mercedes), 140 × 150 mm., 9,237 cc., 3 secs.; Percy Lambert (20·1-h.p. Vauxhall), 89·7 × 118 mm., 2,983 cc., scratch; C. A. Bird (15·9-h.p. Sunbeam), 80 × 149 mm., 2,996 cc., 3 secs.; G. Tysoe (15·9-h.p. Singer), 80 × 142 mm., 2,855 cc., 6 secs.; C. L. E. Geach (15·9-h.p. Singer), 80 × 149 mm., 2,296 cc., 9 secs.; W. R. McBain (15·9-h.p. Delage), 80 × 149 mm., 2,996 cc., 28 secs.; R. Winn (22·4-h.p. Ford), 3¾ in. × 4 in., 2,896 cc., 28 secs.; O. D. Pollak (15·9-h.p. S.C.A.R. "Mud"), 80 × 140 mm., 2,815 cc., 28 secs.

This was far and away the best race of the afternoon and one of the finest ever seen on the track; excitement grew very high when the whole field entered the straight in two bunches about 70 yards apart and finished very much in this formation. Only a few yards separated the first five cars, and the second bunch were almost as closely together. It was a fitting conclusion to a successful season's racing. Winner's speed, 67¼ m.p.h.

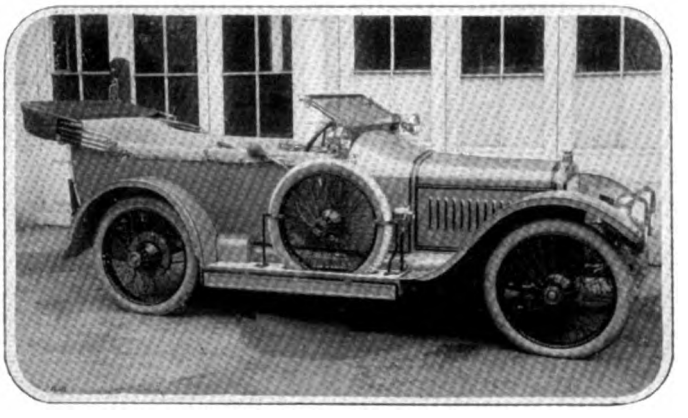


During the R.A.C. Trial of the Cadillac Lighting and Ignition System now in progress.—For this 2,000-mile road test the lamps are being kept alight the whole of the time the car is out except for the luncheon interval, the total number of hours during which they will be alight about equalling the average season's use by an ordinary owner. On the left, measuring the voltage before the start on the right, the car under test arriving at Andover.

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THE 15·9-H.P. HISPANO-SUIZA CAR, "ALPHONSO XIII" MODEL.

RARELY, if ever, in the history of the motor industry has a car made its way more quickly into the front rank of the international motor market and into the favour of motor users than the Hispano-Suiza, the demand for which had rapidly grown to such dimensions that after only three years of existence a new factory had to be erected, because the already spacious works of the company were found to be quite inadequate to supply the demand for chassis, which was the immediate consequence of the victory of these cars in the classic race for the Coupe de Voiturettes in 1910.

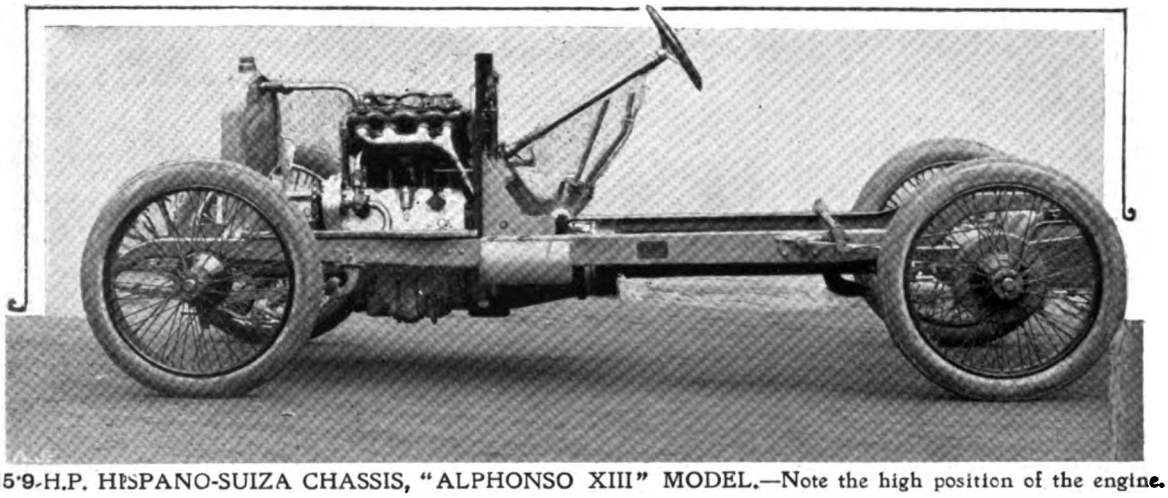


15 9-h.p. Hispano-Suiza car, with a smart torpedo body.

The chief characteristic of the 15·9-h.p. Hispano-Suiza is the extraordinarily long stroke of its engine. True, there are three models equipped with an engine of 80 mm. bore and all come according to the R.A.C. rating under the heading of 15·9-h.p., but while the ordinary models in their engine dimensions differ very little from the average eighty millimetre engine in so far as they have a stroke of 110 and 130 mm. respectively, the third model, called "Alphonso XIII" is equipped with an engine of 180 mm. stroke. Chiefly on account of this remarkable feature when examining the models displayed in the showrooms of Messrs. A. Brown and Co., of 118, Shaftesbury Avenue, who are the sole concessionaires for the Hispano-Suiza cars in Great Britain, we concentrated our attention on this long stroke model, and we readily admit that its design, workmanship, and behaviour on the road and track appealed to us very much indeed.

We do not wish to enter here into the advantages or otherwise of the long stroke engine as compared with the fast running short stroke variety, but we just wish to point out that for the last few years the trend of engine design generally tends towards increasing the stroke, and we have to express our admiration for the designer of this car for his courage in bringing out a standard car in which the proportion between bore and stroke is 1 : 2·25. For this reason outside any other the car is likely to attract the attention of all those who take an intelligent interest in the progress of the industry and in the design of the cars they are using. Moreover, its design from beginning to end spells efficiency, the materials used in the construction are excellent, and even the most critical of observers would have difficulty in finding fault with the workmanship.

Without in any way deviating from what may be called accepted lines, the design of the engine and the chassis as a whole shows that the designer has the courage of his own convictions and does not slavishly follow any fashion or the lead set by some other more or less prominent manufacturer. The 4-cyl. engine, according with modern practice, is cast in a monobloc, and, as can be gathered from our illustration, presents a very massive appearance which inspires confidence. The long stroke, of course, necessitates a crank case of considerably larger proportions than we usually find in the average 80 mm. engine, with the result that the whole engine stands high up above the frame. This high position in turn results in more than usual accessibility of all the working parts; valves, pump, magneto and carburettor are situated high above the frame, and can, therefore, be got at without difficulty. In fact, with the exception of the oil pump, which is situated alongside the bottom half of the base-chamber, no part of the engine requiring attention is underneath. This is an advantage of the long stroke motor to which we attach considerable importance, because it is very rarely realised and should be much appreciated by owner-drivers and



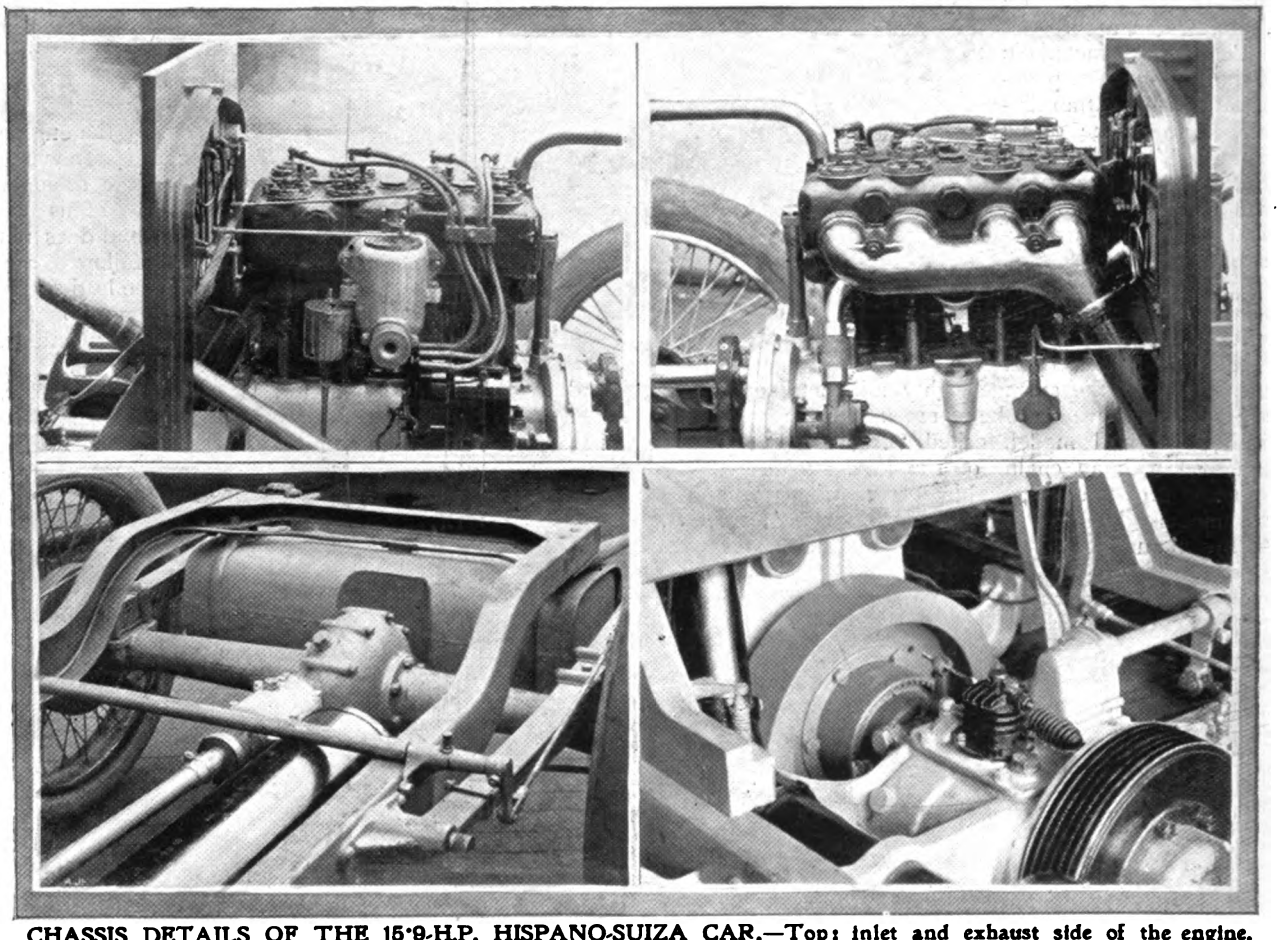
15·9-H.P. HISPANO-SUIZA CHASSIS, "ALPHONSO XIII" MODEL.—Note the high position of the engine.

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chauffeurs. The engine is cooled by forced water circulation; a high speed centrifugal pump driven off the exhaust cam-shaft forces the water through the jackets, which are of very ample dimensions, and into a radiator with a large cooling surface. The action of the latter is greatly assisted by a fan driven off a pulley on the crank shaft. This latter runs in three white-metal lined bronze bearings, which are lubricated under pressure from a pump driven by skew gearing from the exhaust cam-shaft. It is placed low down alongside the engine sump, but outside the base chamber, and a short suction tube connects it with the oil inside the sump. This position greatly facilitates cleaning the oilways and pump. The latter is mounted in such a way that after undoing four nuts the whole can be withdrawn without disturbing the driving gear or any other part of the engine; if a cork is inserted into the opening of the suction tube it is not even necessary to let the oil out of the sump before taking off the pump.

Another indirect result of the long stroke is the placing of the valves on opposite sides of the engine. At first thought many readers may not quite see what the length of the stroke has to do with the position of the valves in the cylinders; as a matter of fact the *position* of the valves is not directly affected by the length of the stroke, but because of this increased length valves of a much larger diameter than usual are required to fill the cylinders which have a correspondingly increased cubic capacity. It would be quite impossible to place eight valves of the necessary size in a row on one side of the engine, therefore the designer has disposed of the inlet valves on the off side and the exhaust valves on the near side. This arrangement, of course, necessitates the employment of two separate cam-shafts, but as cheapness is not one of the claims advanced by the manufacturers of Hispano-Suiza cars, the extra cost in the manufacturing is a secondary consideration; there, are, moreover, quite a number of advantages in the system of separate cam-shafts, which are likely to be forgotten. The Hispano-Suiza car has already been seen to considerable advantage whenever it took part in the competitions on the track, and we have little doubt that more will be seen of it during the next season. To those owners who wish to get the very last ounce of power out of their machines on the track the separate cam-shafts should appeal very much, because they give them plenty of scope for timing the valves according to their very own ideas.

There is yet another noteworthy feature in connection with the valve gear, viz., the construction of the timing gears. In order to ensure perfect silence in the timing gear case the gear wheels are designed in such a manner that they are, so to speak, self adjusting, that is to say they automatically take up any wear that may occur in the course of time. For this purpose the toothed portion of the gear wheels is made in two halves; one half is rigidly connected to the wheel in the ordinary



CHASSIS DETAILS OF THE 15·9-H.P. HISPANO-SUIZA CAR.—Top: inlet and exhaust side of the engine. Bottom: view of the rear-axle and the centre part of chassis. Note the open clutch casing and the tyre pump and clutch-spring over the lid of the gear-box.

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way, while the other half is bolted on to the former in such a manner that its teeth can vary their position in relation to the teeth of the rigid half within certain limits. The bolts which hold this movable tooth ring on to the fixed part of the gear wheel pass through slots instead of circular bolt holes, while a number of spiral springs are interposed between the bolts and the loose toothed ring. The effect of this arrangement, which looks very much like a spring drive, and in fact has frequently been mistaken for it, is, that owing to the pressure exerted by the springs on the loose part of the tooth-ring, the teeth of the pinion on the crank-shaft as soon as they engage with the teeth of the half-time-wheel are pressed tightly against the teeth of the fixed part of the latter, and are kept in close contact with it until actually disengaged, with the result that under no circumstances can there be any chatter or noise in the timing gear.

Ignition is effected by a Bosch H. T. Magneto placed on the forward end on the off-side of the engine, where it is readily accessible. A feature of the ignition, which is worth mentioning, is the position of the sparking plugs, which are placed right in the centre of the cylinder head, an ideal position for rapid combustion.

It would be surprising if a designer of so individual a car as the one under discussion did not have something out of the ordinary to show in the fascinating problem of carburation. Quite apart from using an extremely neat and well made three-jet carburettor of his own design the engineer responsible for this interesting chassis pays a compliment of no mean order to his clients in giving them credit for a certain amount of intelligence and knowledge on this subject. And he is right in doing this, for there is no more interesting part of a car's anatomy than the carburettor. But where the engineers of the Hispano-Suiza works show their ingenuity is, that they have fitted a carburettor that provides ample scope for the most expert and discriminating driver, while at the same time it is almost fool proof. Indeed, short of actually wilful damage the setting of this carburettor cannot be disarranged by any tinker, however often he may take it to pieces. The carburettor is one of the neatest it has ever been our good fortune to examine. Its mode of attachment is simplicity itself, it is held flat on to the engine casting by a couple of studs and can be removed by merely unscrewing the two bolts and the petrol union. On the other hand the float chamber with the three jets can be withdrawn from the body of the carburettor proper by undoing but one nut at the bottom. The main air enters underneath around the jets, which are uncovered in rotation by the movements of the throttle, while an additional hand-controlled air valve is provided at the top. Petrol is supplied to the carburettor by pressure from a tank under the rear end of the frame; the pressure in which is maintained by a small air pump on the near side of the engine. A very neat safety valve is fitted on the engine side of the dash board to prevent the pressure in the tank rising beyond the limit of safety.

Although as a rule the transmission system of a car does not offer so many opportunities for a designer to display his own ideas, the transmission of the Hispano-Suiza car shows many interesting features. The multiple-disc clutch, which transmits the drive to the gear-box, is remarkable in that it runs perfectly dry, no lubrication is necessary, and the clutch-case has been left open at the rear end. One of the chief drawbacks in many unit constructions is the inaccessibility of the clutch adjustment, which, in this case, however, has been overcome in a very simple and ingenious manner by placing the clutch-spring above the lid of the gear-box and using a kind of bell crank lever to bring its pressure to bear on the clutch proper. This construction enables a very accessible and simple adjustment to be fitted at the top of the bell crank lever, where the tension of the spring can be regulated by a simple wing-nut. Incidentally, in this design a suggestion of the writer contained in a critical article in the Auto. of January 13th, 1912, has been carried into practice, a fact which to us is a matter of considerable gratification.

In order to form a complete and very compact power unit, the gear-box casting is extended forwards and bolted to the crank-case underneath the flywheel. The joint is made absolutely rigid by dovetailing the two castings, so that the alignment cannot possibly be disturbed even if some of the bolt holes, or all of them, should by some misadventure have worn oval.

Three speeds forward and a reverse are provided, which are controlled on the gate principle. By means of a long propeller-shaft, universally jointed at either end, the power is conveyed to the rear axle where the final drive to the axle shafts is by bevel and crown wheel. As can be gathered from our illustration, the design of the rear axle casing is extremely neat and rigid. The load is carried on the axle sleeves so that the moving parts are relieved of all but the driving strain.

Semi-elliptic springs are used on both axles, and it must be said that they answer very well indeed. We had opportunity to find this out when we took the car round the Brooklands track at speeds considerably exceeding a mile a minute, and we were particularly impressed by the smoothness of the running over some pretty rough spots. The usual two sets of brakes are fitted; the foot break works on a drum behind the gear box in the usual manner, while the compensated side brake acts on the rear wheel drums. Both brakes are very powerful, but smooth and progressive in their action; a good feature of the foot brake in particular is the very large size of the drum, which is fitted with cooling ribs. The adjustments to both brakes are conveniently situated and wear can be taken up without the aid of tools by simply turning a thumbscrew.

Having had an opportunity to take this car out for a trial run over a distance of some seventy miles, we will not conclude this article without saying a few words about the all-round handiness of the car generally, and the smoothness and liveliness of the engine in particular. Both on the road and on the track the car comes up to the most exacting requirements, and rarely indeed have we steered a car where speed, pure and simple, was combined with flexibility and smoothness of running in such an harmonious way. The acceleration of the car is little short of marvellous, and in spite of all the remarkable performances of which the car is capable the petrol consumption is quite moderate, and considerably over 20 miles to the gallon.

The car which we used on this occasion had a mileage of something like 12,000 to its credit, without having ever been overhauled. Its condition throughout was excellent, and was the best proof against the popular belief that long stroke engines soon "knock themselves to pieces." It ran with perfect smoothness at very low as well as extremely high engine speeds.

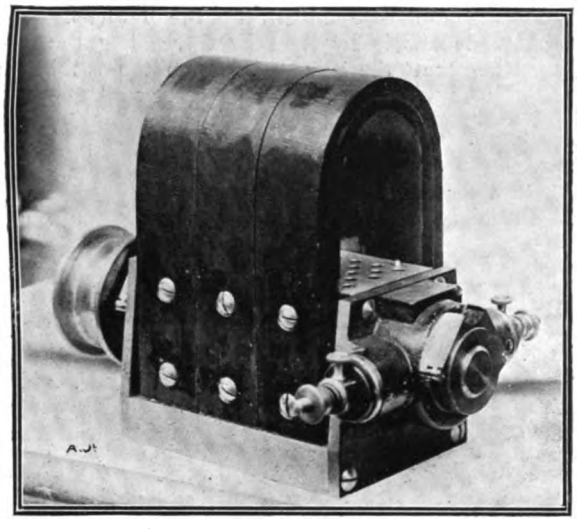
The car is available in two lengths of chassis, the price for the shorter one with a wheelbase of 8 ft. 8 ins. is £425, while the long model has a wheelbase of 9 ft. 10 ins. and is priced at £465. Rudge-Whitworth detachable wire wheels are included in these prices.

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DYNAMO LIGHTING SETS.—IV.

THE LODGE.

IN our issue for January 6th last we illustrated the Lodge "Flame Filament" lamp, and in view of the fact that Messrs. Lodge Bros. and Co., of Birmingham, have spent a considerable time in designing a set of lamps which shall be particularly suitable for electric lighting, and that a considerable portion of the efficiency of the Lodge lighting set is without doubt contributed by the lamps and bulbs, it would be unfair to describe the dynamo and switchboard alone without some reference to these auxiliary but important accessories.

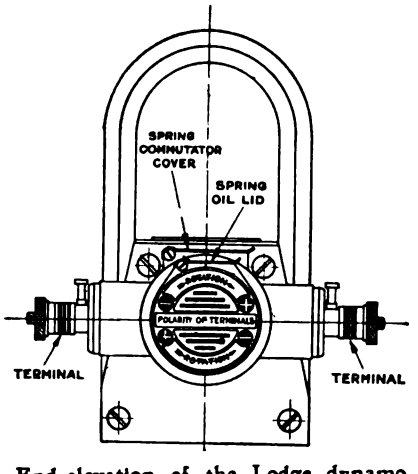


The Lodge lighting dynamo.



Switchboard of the Lodge dynamo lighting set.

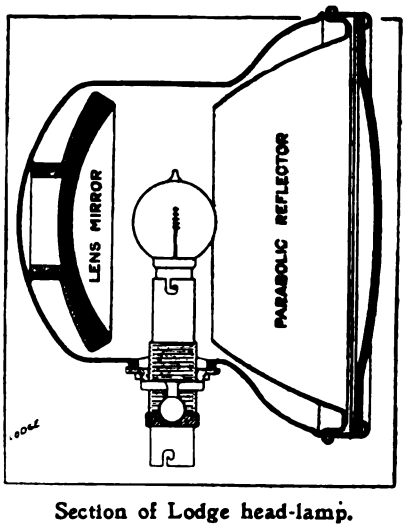
However, to commence with the source of the necessary current, the dynamo, this is of the permanent magnet type—that is, the usual electro-magnetic fields are replaced by permanent magnets similar to those used in a magneto. With this type of machine, if properly designed, it is found that the current rises at a uniform rate, until a certain point, when, owing to armature reaction, the rise ceases to increase with the speed, and remains constant. At excessive speeds, the output even falls off slightly. The Lodge dynamo, then, is simply an armature revolving between the poles of six permanent horse-shoe magnets, with collecting brushes rubbing on the commutator. The armature is of 14 sections or poles, and runs on dust-proof ball bearings at either end. It can be run equally well in either direction.



End elevation of the Lodge dynamo, showing the plainly marked terminals.

There are only two clearly marked terminals on the Lodge dynamo. Its weight is 28 lbs., and in taking account of this weight it should be remembered that no external output control is necessary. A free-wheel pulley is fitted in order to allow of the dynamo running as a motor, should anything or anyone prevent the proper working of the automatic switch.

This latter is contained in the switchboard, which also holds the volt-meter, ammeter, fuse and switches. The cut-out consists of two opposed windings, and when the necessary current is being generated, it attracts an armature which closes the circuit between the dynamo and the batteries. It is accessibly placed behind a door in the front of the switchboard, as Messrs. Lodge consider it somewhat of an insult to the purchaser to seal the instrument up. Both the volt-meter and the ammeter, the latter of the central zero type, showing whether the battery is charging or giving out current, are lighted by a small bulb at the back. As a safeguard against excessive current damaging the wiring in the case of a short-circuit, a fuse is provided just in front of the cut-out, spare fuse wire being kept attached to the fuse clip.



Section of Lodge head-lamp.

The switches are of the plunger type, opening and closing the respective circuits alternately, and are specially arranged thus to be easily operated by the foot. In the standard switchboard a tell-tale buzzer is fitted at the side, to warn the operator should the tail-lamp fail through the filament breaking or faulty wiring. At the side of the board is a two-pin socket, to which may be

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connected the electric horn or other accessory, while, the plug being instantly removable, an adaptor for the inspection lamp may be easily substituted. An item worth mentioning is that a lighting-up table, roughly correct for the longitude of Birmingham, is permanently attached to the front of the door. The weight of the switchboard complete is 7 lbs. The six-volt battery is contained in a teak crate, with rapid catch screws to secure the top. The makers advise fitting it in the framework of the car, under the floor-boards.

The speed at which the cut-out comes into operation is about 12–15 miles per hour, or, roughly, 1,400 r.p.m. of the armature spindle. The output then increases until this speed is nearly doubled, after which it remains practically constant.

The lamps supplied with the Lodge set are of very simple and distinctive appearance. They were designed in collaboration with one of the partners of the well-known optical firm of Aldis Bros., and in conjunction with the Lodge "Flame Filament" bulb, gives exceptionally good results. The illustration of the lamp shows that the filament is all in one plane—thus greatly simplifying the process of focussing—and that there is no obstruction between this filament and the lens mirror.



Notes from New York

146 MOTORISTS who had been summoned by the Chicago police for smoking exhausts and who went to the Court on the 7th inst. with the intention of paying whatever fine was demanded, between $5 and $10, without a murmur, were agreeably surprised when Judge F. K. Blake, sitting as a police magistrate, discharged them all on the ground that the ordinance, which had been made by the City Council, was invalid. "The last Legislature," he said, "passed an Act covering the use of automobiles throughout the entire State, and the Supreme Court has since held that this Act was 'exclusive,' that is, the State having undertaken to legislate on this matter, city councils and similar bodies in various cities and towns have no right to interfere by legislating on the same subject."

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One of the biggest schemes for the making of a good trans-continental road from New York to San Francisco is being engineered from Indianapolis. It calls for the raising of $10,000,000 among the motor car and accessory trades for the purchase of crushed rock, which will be delivered to the various County and State authorities, who will build the road under the supervision of the engineers of the U.S. War Department. An appeal has been issued to various firms in the trade to set aside one per cent. of its gross receipts for one year, and it is hoped that all the money will be promised by the end of this year, and it is proposed to collect it in three yearly instalments. Should the plan by any chance fail, the money collected will be returned to the donors, plus three per cent. interest.

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The plans do not call for any particular route across the States; this point will be settled by a Commission of motoring interests. The road would be some 3,300 miles long, but in view of the amount of good roads in towns and villages, it is reckoned that only about 2,200 miles would need reconstruction. It is hoped to have the road ready for use by the beginning of 1915, so that it may be used by motorists going to the Panama-Pacific Exhibition, which is arranged to open at San Francisco in the spring of 1915. Should this hope be fulfilled, the promoters of the scheme expect that some 25,000 cars will use the route.

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Although it is expected that the greater part of the money will come from the trade, various suggestions are being considered as to securing the co-operation of car owners. One idea is that subscribers of $5, $100, or $1,000, should be given a badge or emblem for attachment to their cars, while another is that for each donation of a $1,000 a post carrying a bronze plate, giving the name of the donor, should be erected alongside of the road. Negotiations are under way with the telephone companies with a view to having plugs fitted to telephone poles at frequent intervals so that in the event of a motorist being overtaken by any trouble he could telephone for help.

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It is announced that Mr. F. B. Lonas, attorney for Messrs. Knight and Kilborne, is largely interested in a plant, which has been started at Turin, Italy, for the manufacture of Knight-engined cars. It is said that M. H. S. Levassor, of Panhard-Levassor, is associated with the enterprise, and the cars will be designed by Mr. W. O. Thomas, engineer for the Knight interests. Two models will be made, one of 20-h.p., with cylinders 90 by 125 mm., and the other of 25-h.p., with cylinders 100 by 150 mm.

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The U.S. Government has at last taken a definite step with a view to encouraging international touring, and the Treasury Department has drawn up regulations permitting the entry of touring motor cars, motor cycles, and aeroplanes into the country for touring purposes for a period of six months free of duty. In the event of American motorists going abroad under these regulations, they will, on their return, be required to pay a 45 per cent. *ad valorem* duty on any repairs or improvements made on the cars, beyond those incident to running the machines, while abroad.

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Several more firms have decided to drop the season model idea, and it is very noticeable how few of the principal American firms are announcing their "1913 models." In the majority of cases the cars now being turned out for the coming season are practically indistinguishable from those which have been sold during the past year, so that it would be somewhat illogical to dub them 1913 models. A general practice is to designate the various models simply by their horse-power. One prominent trader said the other day that in view of the present conditions it was no more sensible to have yearly models in the motor car trade than it would be to have them in the carriage, cab, wagon, or traction engine industries.

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MOTOR CYCLE MATTERS.

By "CASTOR."

I HAVE no doubt that, like myself, the majority of motor cyclists have been keenly awaiting the report of the Treasury Committee which was appointed last December to consider the question of the basis for determining the horse-power of motor cars for taxation purposes. Although, of course, motor cycles were not specifically mentioned as coming within the scope of the Committee's work, yet, in view of the fact that the Act of Parliament embraces motor cycles as well as motor cars, it was generally assumed that the Committee would give them some share of their attention. Moreover, the advent of the present boom in cycle-cars seemed to point to the conclusion that the Committee would be lacking in a proper appreciation of their responsibilities if the inequalities of the law affecting the taxation of this class of vehicle were passed over without consideration and discussion, and suggestions made for the removal of the anomalies existing in the taxation of cycle-cars possessed of three and four wheels respectively.

The report of the Committee was published practically *in extenso* in our issue dated September 21st, and was also commented upon editorially in the same issue. Briefly, the Committee in its report recommends that the method of calculating the horse-power for *petrol* cars remain as heretofore, *i.e.*, by the R.A.C. rating formula $\cdot 4\ D^2N$, D being the diameter of the bore in inches and N the number of cylinders, and that the horse-power of motor cycles be calculated in the same way and taxed according to the following scale:—

	£	s.
Not exceeding 5-h.p.	1	0
Exceeding 5 but not exceeding 6½-h.p. ...	2	2
Exceeding 6½ but not exceeding 12-h.p. ...	3	3

From this it is clear that both cycle-cars and cycles did receive their meed of attention, and, to a limited extent, I am inclined to agree with the suggestions made by the Committee. At any rate the principle of the sliding scale of taxation is more equitable than that at present in operation (where an ancient 1½-h.p. Minerva is on precisely the same footing as an 8-h.p. Chater Lea-Jap and side-car) though possibly most of us—myself included—will consider the scale itself too high. Even if the suggested amendments be introduced, it will be noticed, the lightweight will be expected to pay as large an amount in direct annual taxation as a 5-h.p. passenger machine—a sufficient argument that the scale, although an improvement, could be justly modified in favour of the lightweight, for which a tax of 15*s.* per annum would be none too small.

Of course, it must not be overlooked that the makers' nominal horse-power of their engines is far less than that given by the R.A.C. formula. The ordinary 3½-h.p. engine, for instance, which has a bore of 815 mm., is by the R.A.C. rating, 4·48-h.p., that is only slightly below the 5-h.p. allowed for the £1 tax, and fortunately, the more recent models in what is usually known as the 90 mm. of single-cylinder engines, are of 89 mm. bore, and so pay the same, the R.A.C. rating in this instance being 4·91-h.p, or just under the maximum for the £1 tax. The scale would, however, come particularly hard on riders on older machines in this class with engines of 90 mm. bore, which are rated at 5·02-h.p., and so would have to pay £2 2*s.*

The motor cycle is, after all, the poor man's motor, and it would seem to me to be only just and proper that the difference in comfort and weight between a motor cycle and a motor car of identical bore should be given some premium in the matter of its annual tax, and, therefore, to my mind, the scale should be on a lower basis per horse-power than that suggested by the Committee.

However, it remains to be seen whether the Committee's recommendations will be adopted, either fully, or in part. For myself, unless the proposed scale be modified as suggested, I would rather the present system of taxation on motor cycles and cycle-cars were continued indefinitely.

The Cycle-car.

By the way, speaking of cycle-cars, what *is* a cycle-car? I wonder how many of my readers would be able to answer this apparently simple question off hand. Not many, I think. Anyway I have yet to meet the motor cyclist who, when the question has been put to him, is able to give me an absolutely direct and definite interpretation of the significance of the term. Even to writers in the technical press the matter seems to be enveloped in a haze of doubt, for I have noticed that a price limit is sometimes advanced by them as a necessary qualification, while in several instances I have seen objections raised to the use of the word in connection with a machine built on big car lines.

And yet the distinction, as defined by the ruling of the R.A.C. and A.C.U. jointly, is perfectly straightforward and can admit of no possible equivocation. To be within the cycle-car class, a passenger-carrying motor vehicle, complete in itself, and with either three or four wheels, has merely to conform with the two conditions that (1) its chassis weight, complete with tyres, does not exceed 6 cwt.; (2) its engine capacity is not above 1,100 cubic centimetres.

There is the ruling in a nut-shell. No restrictions, it will be noticed, as regards the price, and none as to whether the machine be built on cycle lines, big car lines, or anything between the two.

In point of fact, it is conceivable that when these conditions were recently laid down, it was not anticipated that such rapid developments in cycle-cars would immediately follow their official recognition as to permit big cars in miniature seeking a place in this class, and possibly, of course, future amendments to the ruling will exclude this type of machine; also, the introduction of a price limit may still further restrict the class.

Be that as it may, however, the fact remains that for the present the above ruling holds good, and designers are perfectly justified in designating their machine a cycle-car, no matter what its constructional features, so long as it meets the above stipulations.



Low Production, Cost, and Quality.

EXCEPTIONAL interest has been aroused by the announcement of the paper which is to be read by Mr. Douglas Leachman on "The Influence of Low Production—Cost and Quality," before the Birmingham centre of the Institution of Automobile Engineers, in the Theatre of the University Buildings, Edmund Street, Birmingham, on Thursday, October 17th. The paper is based on the author's examination of a cheap foreign car after a period of service. Mr. T. B. Browne, the I.A.E. President, will take the Chair.

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. 'Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. A. Holmes, deputy chairman, Mr. H. Pye, trustee; committee, Messrs. Hardy, Moores, Shaw, Holland No. 2, Tipper, Rawson, Dean, Adey, Wallis and Gwilt.

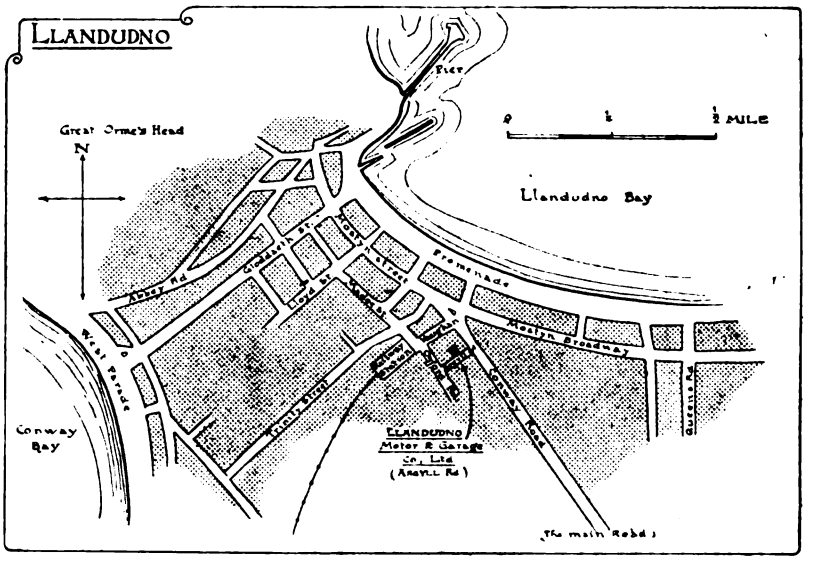
The minutes of the previous meeting were read and confirmed.

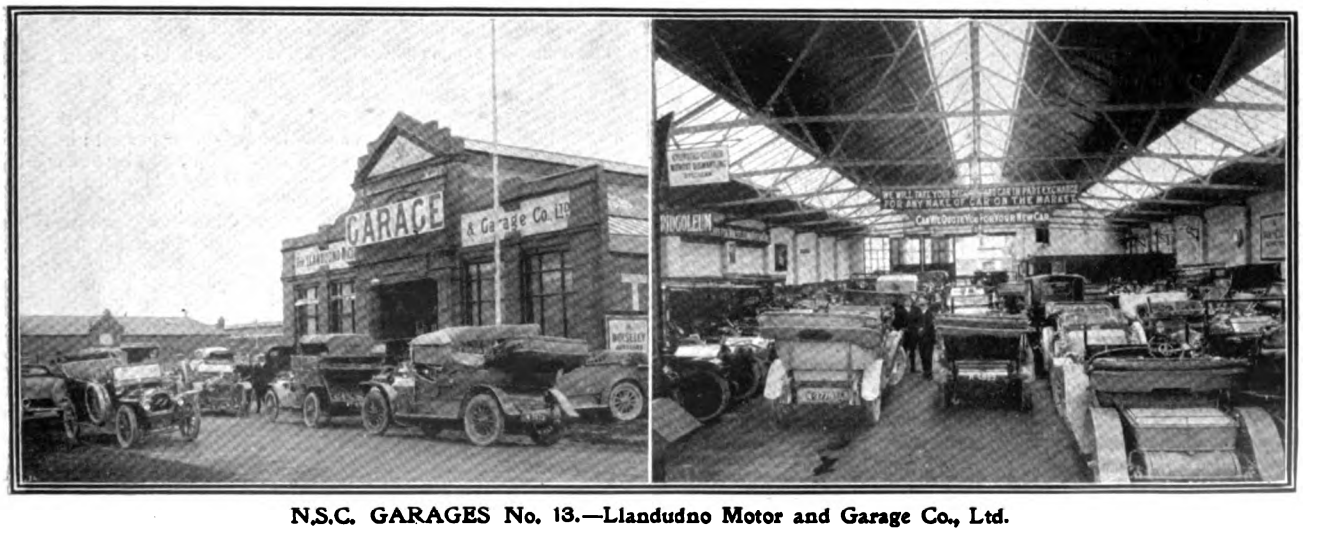
Applications for membership having been dealt with, a report was submitted from Mr. Darmaros, the international representative, with reference to the affiliation of the Society with the Société de Secours Mutuels des Mecaniciens et Conducteurs.

The offices of the society are in Paris, and representatives are elected for the provinces. Mr. Darmaros contended that so many of our members were touring in France during the year that it becomes a necessity and a duty for the Society to look after their welfare when in a foreign country. The Mutual Society would be holding a general meeting on October 15th, to consider the proposition, and he asked that the secretary should be instructed to carry out the necessary arrangements for affiliation, and report to the committee the terms for their acceptance. After a very lengthy discussion it was agreed to affiliate with chauffeurs' societies in France, Spain, Germany and America with, if possible, a working arrangement whereby legal aid could be given to any member of the affiliated societies when touring in either of these countries.

A general discussion as to the need for a small library took place, and as a result the secretary was instructed to arrange for a room in the offices to be used as a library after 5 o'clock in the evening, after 1 o'clock on Saturday, and all day Sunday.

Mr. Rawson pointed out that it was very dull for members staying in the clubhouse on Sundays, and if some really good books were provided it would help members to break the monotony. Mr. Holland considered that the question of using the billiard table on Sundays should be reopened. The Chairman remarked that the committee were almost unanimous in their agreement that no games should be played on Sundays, and it would not add to the dignity of the Society if the use of the billiard tables were allowed on that day. The question of piano for concerts during the winter season was





N.S.C. GARAGES No. 13.—Llandudno Motor and Garage Co., Ltd.

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discussed, and instructions given for the purchase of a piano, it being considered cheaper to purchase than to hire one for each concert.

The Parliamentary programme was next reviewed, the secretary reporting that he had failed to obtain any answer to the letter sent to the President of the Local Government Board asking him when he intended to redeem the promise made to the deputation from the Society, which waited upon him on August 12th, 1911. After discussion, it was agreed to invite the President and Vice-President to attend the next meeting in order to consider the whole question.

The secretary submitted a letter from Mr. J. Cates, Vice-President, dealing with a letter written by the editor of the *Chauffeur* to the *Daily Mail* in reference to driving tests for motorists. He, Mr. Cates, had noted that many of the points advocated by the N.S.C. in their Parliamentary campaign were mentioned by Mr. McKinney. The chairman read the letter, and asked the secretary if Mr. McKinney was aware of the Society's work in this respect. The secretary replied that Mr. McKinney probably would not know of the deputation to Mr. John Burns, or the Parliamentary programme of the Society at the time the letter was sent to the *Daily Mail*, but since the appearance of the letter, and before the letter had been brought to his notice, he, the secretary, had sent a copy of the handbook to him, which contained the aims and objects of the Society.

Several other matters of minor importance having been dealt with, the meeting closed at 11.40.

Review of Events.

The N.S.C. has held for a few years the distinction of being the only independent society of chauffeurs. It is now entitled to proclaim that it is the only Society catering for chauffeurs only. Our good friends, the S.A.M.D., having departed from the A.A. buildings for the reason that the A.A. needed the rooms occupied by their drivers' section, have decided to admit other than recognised motor drivers to enjoy the same privileges as those who are members in the strict sense as regards the advantages of the club-house.

I hear upon good authority that the prominent members of the much-lamented Head Chauffeurs' Club of Great Britain and Ireland have obtained suitable premises for the purpose of forming a liability company, to be termed the Professional Chauffeurs' Club of Great Britain and Ireland. Although I wish them success, for the reason that the breaking up of any society means shaking the confidence of chauffeurs in societies of stability and integrity, I really think another name would have been more applicable, seeing that any persons, other than chauffeurs, are eligible for membership. However, I wish the new society all the luck they wish themselves, and trust we may receive from them assistance in our Parliamentary campaign.

As regards the Insurance Act, the time is growing short, and many members are still nursing the conviction that all will be well with them if they persist in their obstinate decision not to conform with the Act. It is really astonishing the large number of chauffeurs who admit they have not troubled to get an Insurance card, and that "the governor isn't going to worry about it." As one who has the greatest contempt for the measure as framed (not the principle of the Act), I, in all sincerity, advise the obtaining of a card, and to deposit it with an approved society. By sending a post card to me you may obtain a form for admission to the Motor Drivers Approved Separate Section, and also an Insurance card. Don't delay. October 7th starts the last week of the quarter. I am pleased to report that our hard-working vice-president, Mr. J. Cates, has almost recovered from his recent illness.

Accepted for Membership.

Frank Ralph, London, W. | Charles Brown, Surbiton.

Applications for Membership.

Alfred Davis, London, S.W. Bert Knighton, Stoke-on-Trent
Sydney Bonny, London, S.W. John Moon, Tynemouth
Walter B. Everett, London, S.W. F. G. Clements, London, S.W.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2s. 6d. Subsequent subscriptions, 2s. per month. Payable in advance on the 1st of each month. Badges, 1s. 1d., post free. Members may pay yearly 24s., or half-yearly 10s. 6d., payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

GREAT NORTH ROAD.—The Watch Committee of the Soke of Peterborough have recommended that the police take stringent measures against motorists driving furiously through the town, especially in Narrow Street (6-mile limit).

LANCASHIRE.—Members are requested to slow through Garstang.

Blackpool–Poulton Road.—Patches of tarmac are being laid down between Poulton and Blackpool at frequent intervals. Members are requested to drive carefully through Poulton and district.

YORKSHIRE.—Closed pending the re-construction of Lockets Bridge, Guiseborough; alternative route *via* Marske, turn right through Upleatham and Skelton Ellars.

Special caution is again recommended in the speed-limits at Ilkley and Burley-in-Wharfedale.

EAST.

LONDON–YARMOUTH ROAD.—Special care is necessary entering Ipswich from the Colchester end—tramlines are up for repair at Barrack Corner. Re-metalling is in hand at Stratford St. Mary, at bottom of Lexden Hill (special care here), also at Ardleigh. Members proceed with special caution down Dedham Gun Hill.

NORWICH–CROMER ROAD.—Extreme care should be taken when crossing the temporary bridges at St. Faith, Hevingham and Ingworth, which are narrow and only suitable for light traffic.

SOUTH.

BATH ROAD.—At Maidenhead the roadway is closed from Castle Hill to All Saints' Avenue; alternative route, St. Mark's Road and All Saints' Avenue. Repairs are in hand at Kiln Green, also just east of Twyford. Members are requested to proceed with special caution through Slough.

BERKS.—*Reading–Oxford Road.*—Wallingford Bridge is closed to traffic; members proceed *via* Abingdon.

HERTS.—Special care is necessary between Tring and Northchurch owing to surface repairs and the installation of telephone wires, &c., also at Bourne End.

LONDON DISTRICT.—On account of timing operations special care is necessary in Regent's Park Road, N.W., near Church End station, Finchley, Golder's Green, Redcliffe Gardens, S.W., the Boltons, Earl's Court Road; Victoria Embankment, Albany Gate, Regent's Park; Mitcham, Morden, Sutton, Banstead, Croydon, Purley, between Wimbledon and Ewell; Hounslow and Staines; Hounslow–Colnbrook; Roehampton; Putney Heath; Harlesden; Maida Vale; Highgate, near Nag's Head, Holloway; Lewisham High Street; Sudbury to Harrow Hill.

MIDDLESEX.—Control working on Staines–Sunbury road.

Wood Green.—For the same reason special care is necessary near junction of Bounds Green Road and Jolly Butchers' Hill.

Uxbridge Road.—Controls are likely to be working between Southall and Uxbridge.

ESSEX.—*Woodford.*—Special caution is advisable between police station and Bancroft Schools.

Loughton.—Night control working ¼ mile from Epping.

SOUTHAMPTON ROAD.—Controls are worked at night through Egham. Repairs are in hand on the Egham–Windsor road; between Sunningdale and Bagshot; near Windmill Inn, also between Jolly Farmer and Frimley. Water pipes are being laid down through Frimley; repairs are proceeding at Farnborough.

SURREY.—*Portsmouth Road.*—Flashlight controls are working between Kingston and Esher. Between Peasmarsh and St. Catherine's Hill, Guildford, re-metalling is now proceeding.

Eastbourne Road.—Special care is advisable near Kenley police station and gas works, Whyteleafe.

Lingfield races take place on October 5th.

SUSSEX.—Members are requested to observe the 10-mile limit at Uckfield. Surface repairs are now proceeding at the following points:—Between Haywards Heath and Wivelsfield, Silverhill and St. John's Cross, Vinehill and Broad Oak, Brede; also between Pulborough and Wickford Bridge, half width.

WEST.

GLOUCESTER AND BRISTOL DISTRICTS.—*Bristol–Weston Road.*—Controls are working at or near Long Ashton, Bourton Tunnel, Wraxall, Nailsea, &c. Under repair at Star, 13 miles south of Bristol; lighted at night.

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Chauffeur's Experiences



Chauffeurs are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The Auto., 44, St. Martin's Lane, Charing Cross, W.C.

89.

Repairing a Broken Valve.—A broken valve nowadays is so very rare an occurrence that we are all too likely to forget that once upon a time, and not so very long ago either, we never went out without at least three spares in our tool kit. But like most others, I have grown a little slack in this direction, and unless I go for a summer tour or on a very long journey, the very last thing I expect to find in my spare box is a complete valve. A few weeks ago, however, I was taught a lesson. I was not a little surprised at the time it took me to trace the mysterious "popping" into the carburettor, which my engine had developed all of a sudden, to a broken exhaust valve. The stem of the valve had snapped at the cotter hole owing to a slight flaw in the metal, and I was just wondering how the valve could possibly have stood up to over three years' hard work under those conditions when I realised that I was in somewhat of a fix. I had just over eighty miles in front of me, had no spare valve; my car was heavily loaded, and the roads were far from level, although quite good. Under the circumstances it would not do risking the journey on three cylinders, and to make matters worse there was on the whole route not one likely place where I could have some makeshift repair fixed up. To go to the nearest town where a new valve could be made or the old one repaired would take me about thirty miles out of my road. In any case I had to go to the nearest village to send a telegram for a spare valve or two, so I went there cautiously on three cylinders only. On my way I tried to think of some way out of the difficulty, how I could reach my destination the same evening without doing my engine any harm. It occurred to me that it might be possible to use the broken exhaust valve temporarily as an inlet valve, if I only succeeded in fixing it up so that it would act as an automatic inlet. The inlet valve, for the time being, I would use in place of the broken exhaust valve.

I had worked out the idea in my mind quite perfectly, and it all depended on whether I should be able to fix the broken valve up properly. When I came to the village, only two miles from where I had broken down, I found the man who acts as postmaster to be also the universal provider of the surrounding country. I explained my difficulty to him, and with the hospitality and courtesy which distinguishes country folk from selfish town dwellers, he offered me the use of what he termed his workshop. It was not much better than a lumber room, but to my joy I found in it an old breast drill and some drills, one of which I ground down to a suitable size. I first began drilling a new cotter-hole into the stem of my broken valve, next I proceeded to transfer the inlet-valve into the exhaust-port, and then began looking for a spring light enough to serve as a valve-spring for an automatic inlet. After some time I was fortunate enough to unearth from the depths of my tool box a spring which originally was intended to act as a return spring for the tappet-rod of an old low-tension ignition. I slipped it over the stem, put the old spring collar underneath, and used a French nail as a cotter. Strange to say, the engine started readily, and while running idle it was impossible to find any fault with it. When pulling, however, she would "limp" a good deal, but I soon got over that by adjusting the tension of the inlet valve-spring, and in the end there was hardly any difference in the pull of the car on the level. On the hills I changed rather earlier, but I did this more as a precaution, and in the end I reached my destination in quite good time. Next morning my two new spare valves arrived, and I was jolly glad to have ordered two. A spare valve, after all, takes up very little room and it is a great relief to have one when you want it.—*F. E. Lane.*

90.

Raising Pressure in Petrol-Tank Without a Pump.—The following dodge, showing that it is not absolutely essential to have a hand-pump in order to raise initial pressure in petrol-tanks is not new. But I have never seen it printed anywhere, and it occurred to me that there may be quite a number of chauffeurs who have not heard of it and might find it very useful in an emergency.

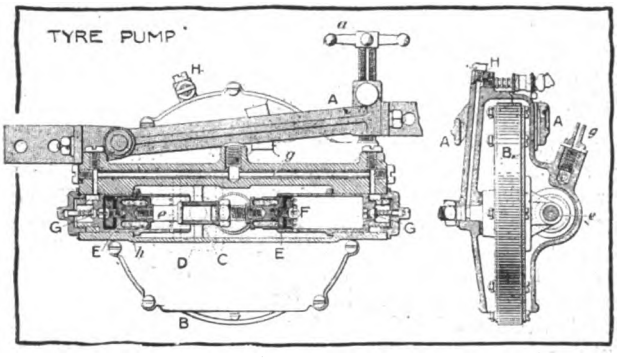
In the event of the hand-pump becoming inoperative for one reason or another, pressure in the tank can be raised comparatively easily. All you have to do is to close up the opening of the exhaust pipe with a bung of suitable size, or a ball of cotton waste or some other material, open the throttle wide and "swing" your engine for about a dozen revolutions. Your engine thus acts as an air compressor, which draws pure air through the inlet valves and pumps it into the exhaust pipe. The latter is blocked up at the end, a considerable pressure is set up in it, which is soon sufficient to overcome the resistance of the spring of the pressure valve, and the compressed air passes into the petrol-tank. Before starting up your engine don't forget to take the bung out of your exhaust pipe.

If you can get someone to hold either his hand or foot over the exhaust outlet, pressure can generally be raised in less time than it takes with the hand pump.—*Herbert Winzer.*

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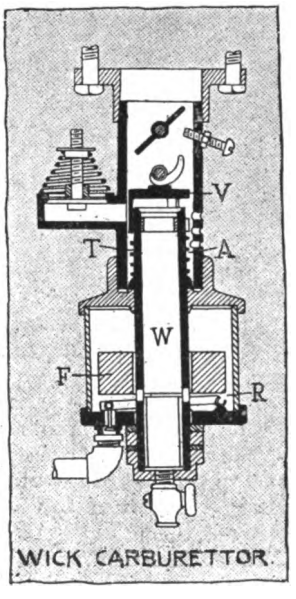
FOREIGN MISCELLANY.

A New Tyre Pump.—This device is intended to be driven by friction from the fly-wheel, the hand-screw, *a*, serving to bring the friction-wheel, B, in contact with the driving-wheel. The two opposed pistons, E, are attached to the same piston-rod, which latter can be adjusted as to length by means of a threaded stem and lock-nut. Rigidly attached to the middle of the piston-rod is the slotted frame, D, shown in dotted lines; inside this slot



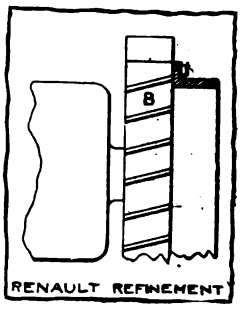
the crank-pin of the wheel, B, is free to move, rotation of the latter, therefore, imparting a reciprocating motion to the pistons of the pumps. An advantage of the comparatively large and heavy wheel, B, is, that it enables the device to work without the friction-wheel slipping at the points of maximum compression. On the whole this would seem to be one of the best tyre pumps of the friction-driven type brought out so far.—*Omnia.*

An American Wick Carburettor patent is illustrated herewith. W, is the tube which contains the wick, the lower end of which dips into the petrol contained in the float chamber, R. To regulate the mixture, a cap, V, can be lowered more or less on to the top of this tube. We fail to see how sufficient evaporative area can be obtained from such a small quantity of wick. The Lanchester wick carburettor, for the efficiency and simplicity of which we have nothing but praise, contains a very much greater quantity, its consequent bulk being, perhaps, its only disadvantage.—*The Automobile.*

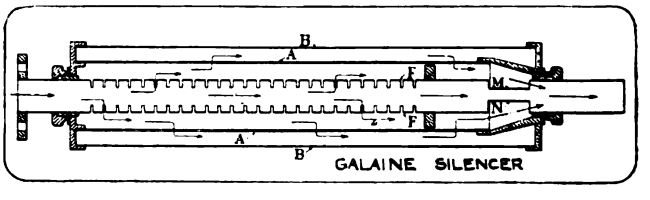


Fuel Correction.—In the belief that carburettor troubles in the main are attributable to the operator's difficulty in mastering the technique of more or less complicated regulating devices, many inventors are now seeking to perfect so-called non-adjustable types of carburettor. And it is noteworthy that in more than one instance their efforts appear to have been crowned with conspicuous success. Nevertheless, it must be borne in mind that prior to the present era of the spring-controlled auxiliary air valve, the double throttle, the multiple jet and the other manifold expedient devices of the moment, practically non-adjustable types held undisputed sway. Schemes of automatic regulation, introducing the adjustable feature, swept it out of sight as the effort was made to overcome certain of its more prominent shortcomings. With better knowledge of the requirements the present tendency to return to it is quite as much an effort to eradicate the mechanical complication which the automatic type introduced, as an inspired attempt to effect revolutionary changes in principle. The little recognized fact is that better and more uniform fuel is wanted quite as badly as a better carburettor, and were no less effort expended in attempts to secure it than is now devoted to carburettor design, perhaps the desired end of economical and reliable operation would be as speedily attained.—*Automobile Topics.*

A Renault refinement.—As the fly-wheel of these engines is fitted with vanes at its periphery, it would, under ordinary circumstances, be impossible to employ it to drive the friction wheel of a syren, a fitting extremely popular in France. However, with commendable forethought, the designer of these cars has fitted an aluminium ring to the outer face of the wheel which can be used for driving various instruments such as syrens, air compressors, &c.—*Omnia.*



The Galaine Silencer.—Though it is a well-known fact that the effective power of an engine may be increased by fitting some sort of silencer, such as a long straight pipe, yet it is not such a simple matter to apply this knowledge in the case of a motor car engine, owing to the limitations of space and the widely varying exhaust gas velocity with which a motor car silencer has to deal. A new silencer has recently been tested in the laboratories of the Automobile Club de France by M. Ventou-Duclaux, the results being highly gratifying. From the appended illustration it will be seen that the exhaust pipe coming from the engine has a large number of transverse slots cut in it.

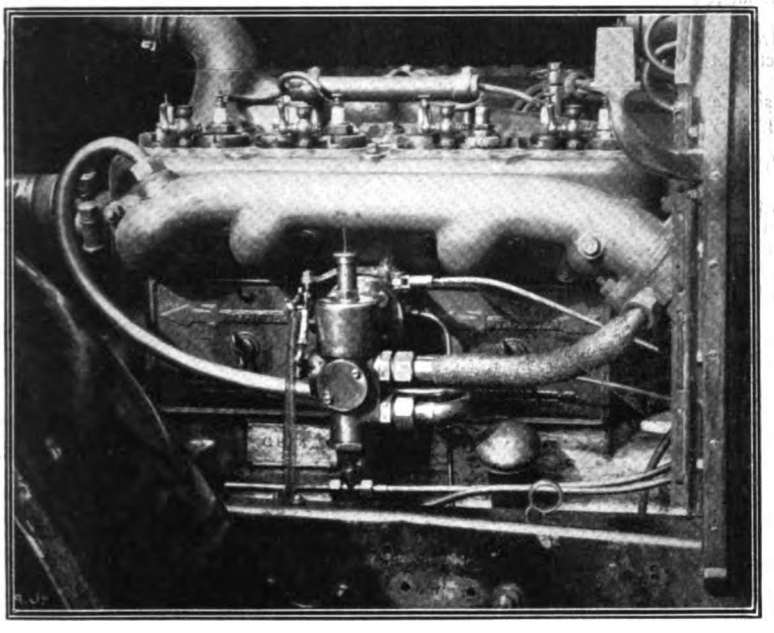


This pipe is surrounded by a perforated cylinder of larger diameter, A, which, in its turn, is contained within the outside casing, B. A partition, F, is introduced inside A, whereby the gases which pass through the slots in the exhaust pipe, are obliged to enter the external annular chamber before escaping to the atmosphere. To prevent the larger part of the exhaust gases from escaping straight to the atmosphere through the central pipe, the latter is cut away to a large extent near its outer end. An ejector-like action is thereby set up which causes a considerable part of the gases to pass into the outer chambers from whence they again flow back to the central stream, reduced both in temperature and pressure. The results of the experiments showed a gain of about five per cent. when using this silencer.— *Vie Automobile.*

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THE STEWART-MORRIS PARAFFIN CARBURETTOR.

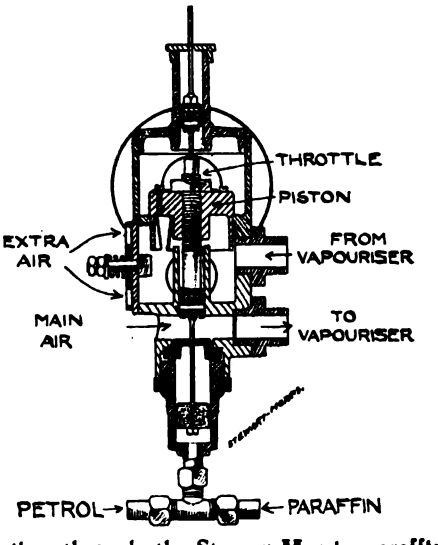
A FEW weeks ago we were able to publish some preliminary details regarding the 2,000 miles' trial to which a Stewart-Morris paraffin carburettor had been subjected. The official certificate issued by the R.A.C., under whose observation the trial was carried out, is now to hand, and as anticipated, contains a good deal of information which should prove highly interesting to private motorists as well as users of commercial motor vehicles.



Stewart-Morris paraffin carburettor fitted to the 27-h.p. Pathfinder engine.

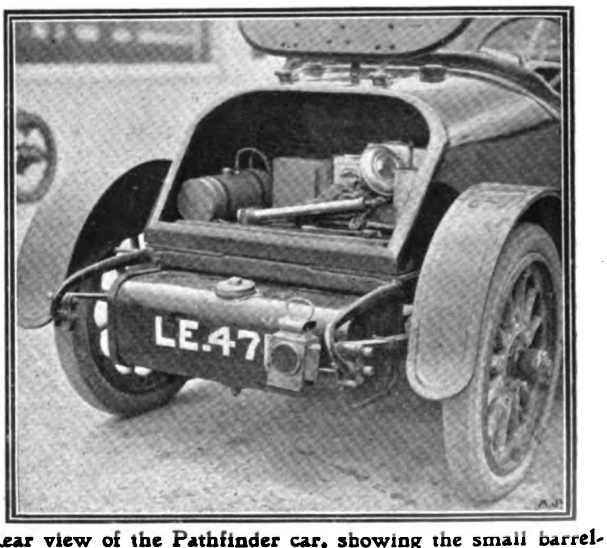
It will be remembered that the carburettor was fitted to the engine of a 27-h.p. Pathfinder car, and our illustration shows clearly that the design of the carburettor is such that it can be fitted to almost every petrol engine without much difficulty. As can be gathered from the sectional drawing which accompanies these notes the device is by no means complicated. The body of the carburettor proper contains three separate compartments, which are superimposed on one another. The lowest contains the jet, the size of which is controlled by a taper-needle; it is connected to the next higher chamber, which we shall call the mixing-chamber, by means of a long tube, part of which leads through the exhaust manifold so as to assure a complete vaporisation of the fuel, and is therefore called the vaporiser. In this mixing-chamber the rich mixture which leaves the vaporiser is mixed with cold air in proportion to the demands of the engine and the explosive mixture thus formed passes into the throttle-chamber and thence into the engine. The correct proportion of fuel and air is automatically maintained by the suction of the engine which, when the throttle is opened, raises the piston, that separates the throttle-chamber from the mixing-chamber below. This piston carries the tapered needle, which projects into the orifice of the fuel jet, so that with the increased suction of the engine a proportionately larger quantity of fuel is allowed to pass the jet and *vice versa*. The throttle, by means of a bell crank lever and link motion is connected up to an extra air-valve on the forward side of the mixing-chamber in such a manner that the more the throttle is opened the more additional air is admitted to the mixing-chamber. The admission of this extra air into the mixing-chamber naturally has the effect of decreasing the negative pressure in the jet-chamber, with the result that both the fuel and air supply are within certain limits always correctly proportioned.

An entirely independent extra air valve is fitted in addition to the one automatically worked by the movements of the throttle and by means of this the driver is enabled to correctly balance the mixture under certain circumstances; for instance, at very high speeds or on very hot days when additional air is necessary or desirable.



Section through the Stewart-Morris paraffin carburettor.

In order to prevent the rather heavy piston in the carburettor from jumping about, a dash-pot is provided in the lowest part of the carburettor which is always filled with fuel, and an additional compensating piston is placed in a small cylinder set on the top of the throttle chamber, which also has the tendency to damp the movements of the main piston.



Rear view of the Pathfinder car, showing the small barrel-shaped petrol tank in the tool-box. The main tank contains paraffin.

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The carburettor was fitted in the usual place. The paraffin tank was fitted between the rear spring hangers, the fuel being lifted to the carburettor by pressure. The petrol for starting was carried in a small tank in the boot, the same pressure system being used for both fuels. Petrol and paraffin pipes led to a three-way cock on the heel-board, thence to the carburettor. The pressure was not sustained automatically, but by means of a hand pump. The pressure was not kept constant, but was usually between 5 and 6 lbs. per square inch. It was increased when approaching any considerable hill, and was put up to 7 lbs. per square inch on Sunrising Hill.

The control was by throttle and cold air lever. The latter was not used much—on an average about three times a day.

On some occasions when the engine was started on petrol a device was employed which allow petrol to be injected directly into the induction-pipe.

The paraffin oil used was an oil marketed by Messrs. Carless, Capel and Leonard as "Phoebus" oil. Its specific gravity was ·807 at 13° C.

The following is a synopsis of the methods by which the engine was started during the trial:—

The engine was started direct on paraffin 23 times, the longest stop after which this was done being 17 mins. On four occasions unsuccessful attempts were made to start on paraffin direct.

On nine occasions the engine was started on paraffin, petrol having previously been injected into the induction pipe, the longest stop after which this was done being 45 mins.

The engine was started upon petrol 21 times, the shortest period after which the fuel was changed to paraffin was 10 secs., the longest being 4 mins. 20 secs. The variation in this time appeared to be dependent upon the duration of the previous stop. On six occasions the engine stopped when the change of fuel was made, being, however, subsequently re-started on paraffin.

The total distance covered during the trial was 2,003·3 miles, 1001·0 miles being run upon the road upon the Club's six standard routes and 1,002·3 miles upon Brooklands track.

Road Trial.—The average speed (running time only) was 19·8 miles per hour. The quantity of paraffin used was 47·88 gallons, being a consumption of 20·91 miles per gallon or 35·70 ton-miles per gallon.

1·05 gallons of petrol were used during the road portion of the trial.

Brooklands Tests.—The 1,002·3 miles upon the track were covered at an approximately constant speed of 35 miles per hour. The paraffin consumed was 46·41 gallons, being a consumption of 21·59 miles per gallon or 36·88 ton-miles per gallon. 0·76 gallon of petrol was used during the track portion of the trial.

Slow Engine Speed Test.—The engine was run idle for ten minutes on paraffin at an average speed of 352 revolutions per minute. The speed during this time was very regular, and no misfiring was apparent. At the end of this period the throttle was opened to its fullest extent as quickly as possible, the ignition at the same time being advanced more slowly. The engine accelerated regularly, without hesitation or misfiring.

Slow Car-Speed Test.—The car was driven, on paraffin, on top gear for 1·5 miles at an average speed of 6·14 miles per hour, the speed being kept as constant as possible. The car was then accelerated, 39·2 miles per hour being attained in 51 seconds. The engine fired regularly during the slow running except during the last 200 yards, when there was occasional misfiring.

Consumption Tests.—The following tests of the consumption of paraffin were taken:—

Speed.	Consumption.		Speed.	Consumption.	
m.p.h.	m.p.g.	ton-m.p.g.	m.p.h.	m.p.g.	ton-m.p.g.
10·6	23·12	39·48	25·2	27·19	46·44
14·9	23·81	40·66	30·45	23·94	40·89
20·1	26·69	45·58	35·8	17·45	29·81

Hill Test.—The car was timed up the test hill, the speed being 11·16 miles per hour. The weight of the car and load in this test was 3,557 lbs.

Condition after Trial.—At the conclusion of the trial the cylinders of the engine were removed. There was a somewhat considerable amount of deposit upon the piston heads of No. 1 and No. 4 cylinders, while that on the piston heads of No. 2 and No. 3 cylinders was not so great. The cylinder heads and valve ports had slight deposit, but were somewhat sooty. The valves had no deposit, but were somewhat sooty. The sparking-plugs were slightly sooty. The engine showed signs of over lubrication.

General Remarks.—Throughout the trial there was no misfiring, with the exception of that mentioned above in the Slow Car-Speed Test. During the trial 1 min. 1¼ secs. was taken to check the adjusting nuts of the taper needle. With this exception, no work was done upon the carburettor or upon the engine. Throughout the trial, except for engine starting, the car was driven upon paraffin fuel.

On one occasion the engine suddenly stopped upon a hill. The fuel pressure was at the time 4½ lb. per square inch. The engine was restarted by engaging the reverse gear.

The temperature of the cooling water was taken at mid-day each day, and was found to vary between 94° C. and 96° C.

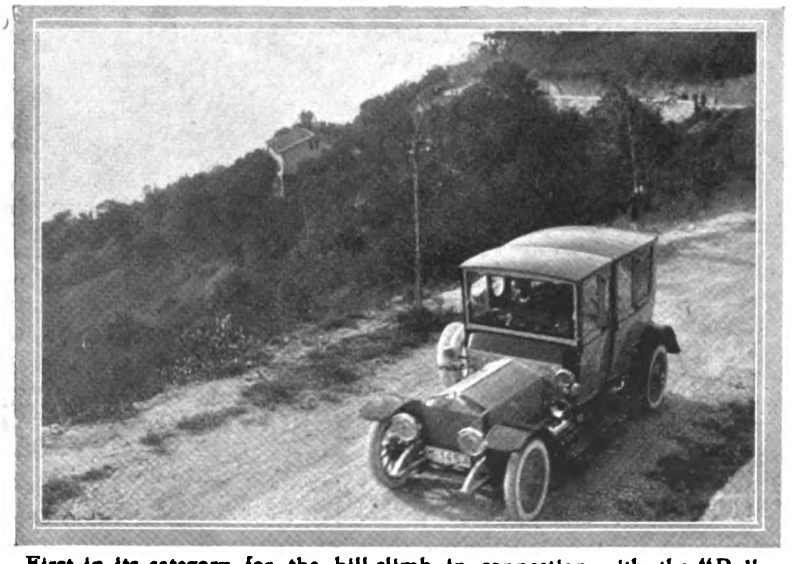
Throughout the trial the engine was stopped by turning off the fuel supply and not by switching off.

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RACES, RECORDS AND TRIALS.

Fuel Tests by R.A.C.

THE Petrol Committee, having resumed its work after vacation, has decided, in order to obtain some reliable data on the subject, to ask the Royal Automobile Club to carry out a series of trials with liquid, solid, and gaseous fuels for both pleasure and commercial motor vehicles, such trials to be carried out both on the car and on the bench. A request has also been made to the Royal Automobile Club to consider the desirability of holding a public competition of vehicles propelled by fuels other than exclusively petrol.



First in its category for the hill-climb in connection with the "Rallye St. Sebastien."—M. de Las Almena's Rolls-Royce car.

A Petrol Consumption Test.

OVER a course from Sutton Coldfield to Lichfield and back, a distance of 32 miles, the Sutton Coldfield and Mid-Warwickshire A.C. held a petrol consumption trial on Saturday last. The course was practically devoid of hills but the strong wind blowing made the consumption somewhat higher than usual. Among the cars Mr. S. E. Collins' 15–20-h.p. B.S.A. was first, doing 32 miles to the gallon and Mr. M. Ganderton, on a 15–18-h.p. Hupmobile, was second. Among the motor cycles, Mr. J. L. Norton, on a 4-h.p. Norton, secured the first place, and Seymour Smith, 3½-h.p. Norton was second. The side-car class was won by

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J. Woodhouse, on a 4½-h.p. Rigal, doing 68 miles to the gallon.

Trial with a Vauxhall Car.

AN official certificate has just been issued by the R.A.C. concerning an engine non-stop trial from London to Edinburgh with a 20·1-h.p. Vauxhall car entered by Mr. Humphrey Cook. This states that the weather on August 27th and 28th, when the trial was held, was fine with a few showers.

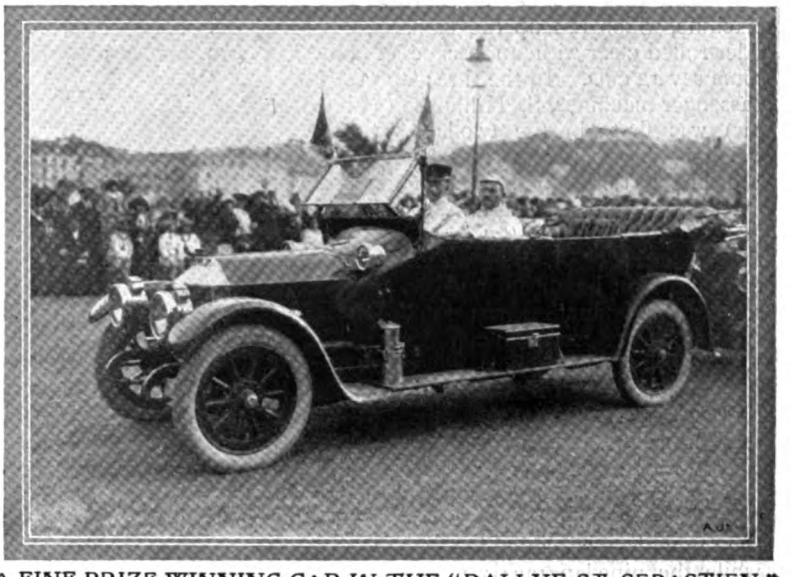
The total distance travelled was 404 miles, which was completed without an involuntary stop. A detour of seven miles was made to avoid floods at about 64 miles from London. Throughout the trial the engine was not stopped. Sundry voluntary stops (with engine running), totalling 1 hour 41 mins., were made for replenishments and traffic.

The distance was covered at an average speed of (running time only) 19·81 miles per hour.

The petrol consumed was 16·12 gallons, being a consumption of 25·06 miles per gallon, or 37·92 ton-miles per gallon.

The following are the details of the car :—

Number of engine and chassis	G 106
Bore and stroke of engine, 4 cyls. ...	90 mm. × 120 mm.
Weight of car, front axle	1,449 lbs.
,, back axle	1,561 ,,
Total weight of car	3,010 ,,
Average total running weight	3,389 ,,
Wind re-istance area of two-seated body	13·4 sq. ft.
Gear ratios, top speed	3·6 to 1
,, 3rd ,, ...	5·6 ,, 1
,, 2nd ,, ...	8·5 ,, 1
,, 1st ,, ...	13·8 ,, 1
Size of tyres	875 mm. × 105 mm.



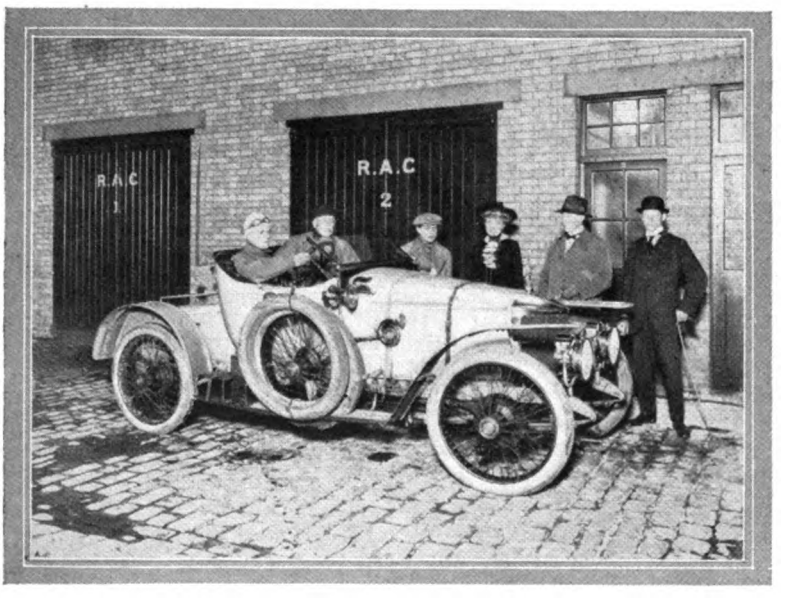
A FINE PRIZE-WINNING CAR IN THE "RALLYE ST. SEBASTIEN."—M. Aschoff's Metallurgique, which was first in the general classing in B Section, first in the Concours d'Elegance for open cars, and won first prize for the St. Petersburg stage.

Stelastic Tyre Trial.

THE set of Stelastic tyres entered by the Stelastic and General Syndicate, 11, Queen Victoria Street, E.C., which are undergoing an R.A.C. road trial of 5,000 miles, are performing well, and up to Wednesday week last had completed approximately 2,234 miles over the six standard routes of the club.

An All-Day Motor Cycle Meeting at Brooklands.

A SPLENDID programme has been arranged by the British Motor Cycle Racing Club for their meeting at Brooklands on October 12th. In a sense it will be a combination meeting as the arrangements have been made by the Auto-Cycle Union to include the races for the perpetual challenge trophies which have hitherto been run off at a meeting organised by the A.C.U. Three items are down on the programme for the morning commencing with time trials over a kilometre and mile. These will be followed by a one-hour cycle car race and an event of similar duration for side-cars. The afternoon programme will open with the Junior One-hour A.C.U. Championship race for the AUTO. Challenge Cup, the race being open to machines with cylinder capacity not exceeding 350 cc. Following this will be a five-lap A.C.U. Championship race for motor cycles with cylinder capacity not exceeding 1,000 cc., and then the Senior One-hour A.C.U. Championship race for motor cycles having a cylinder capacity not exceeding 500 cc.



A non-stop R.A.C.-observed London-Edinburgh run by Mr. Humphrey W. Cook, an Oxford undergraduate, on a 20-h.p. Prince Henry Vauxhall car.—The 404 miles were covered without an involuntary stop, including a detour of seven miles to avoid floods about 64 miles out. The running time gave an average speed of 19·81 m.p.h., petrol consumption 16·12 gallons, equivalent to 25·06 miles per gall. Our photograph shows Mr. Humphrey W. Cook at the wheel at the start.

Motor Cycling at the Stadium.

WITH an ambitious programme, containing no less than 18 events, for half a dozen of which there was no time, the North-West London M.C.C. held a very enjoyable meeting at the Stadium at Shepherd's Bush on Saturday last. There was one exciting incident, when D. Grey Blakey, on a 5-h.p. Matchless, lost control of his

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machine, which ran up the banking, but fortunately the rider rolled clear with an escape of a broken arm and some severe cuts. In the three-lap race for handicap for passenger machines, S. Hillhouse (3½-h.p. Triumph side-car) was first; in the two-lap scratch race for light-weights W. Cooper (2¾-h.p. Douglas) was the winner; and in a three-lap scratch race for single-cylinder machines E. Gwynne and E. F. Lawrence, on Rudge machines, fought out the issue, with the advantage to the former. H. J. Pulley (2½-h.p. Premier) won the three-lap light handicap, and W. Cooper, starting from scratch, had another win in the Douglas handicap. A scratch race for multi-cylinder machines was won by R. L. Prinz (5-h.p. Bat), while an open light-weight scratch race went to F. E. Barker (2¾-h.p. Zenith), and on this machine he subsequently lowered the track record for the mile to 1 min. 7⅗ secs. Later, Harry Martin rode a mile in 1 min. 4⅕ secs. A four-lap handicap for single-cylinder machines was won by E. Gwynne (3½-h.p. Rudge), and the handicap for light-weights, over the same distance, ended in another win for F. E. Barker, while the nine-lap race was won by P. H. Goddard on a Douglas. Several gymkhana events were also run off during the afternoon.

A New Cycle Car Record.

On Wednesday week Mr. J. T. Wood, on a G.W.K. cycle car, succeeded in beating the hour record for cycle cars, covering 47 miles 1,390 yards in that time. He also reduced the 50 miles record to 1h. 2m. 33s.

A Useful Book for Chauffeurs.

That the National Society of Chauffeurs is deserving of the support of all good motor drivers in private service is well known to readers of this journal, and it has now rendered its members a still further service by producing a most excellent handbook. It is astonishing what an immense amount of really useful information has been got into a very small compass. The pith of the law on motoring is stated simply and succinctly; there are illustrations of road signs to be found in England and in France, tables of lighting up time and index marks, hints on repairing tyres, some "Don'ts" for motorists, a simple table showing taxes payable, a few useful conversion tables from English to the metric system, a technical dictionary, with French and German equivalents, while, of course, the rules of the Society and the advantages of belonging to it are dealt with, and there is also a list of N.S.C. garages. We congratulate the N.S.C. on producing such an excellent little book, and feel sure that they will have their reward in an augmented membership, while every member will see to it that his handbook is always with him.

That membership of the N.S.C. is a guarantee to the employer of the fullest confidence in any chauffeur coming from the Society, and that it is an honour, irrespective of the many advantages obtained, for a chauffeur to be a member of the N.S.C., may be appreciated from the following chief principle governing membership, which is given greatest prominence by the committee of the Society.

"Intending members will please note that the National Society of Chauffeurs is not, and cannot become, a trade union in any sense. The Society wishes to become the recognised source for owners requiring chauffeurs to obtain their drivers, therefore it is essential to maintain a high standard of character and efficiency. To this end it is the policy of the Society to expel members who are found guilty of using their employers' cars for joy-riding and other acts calculated to bring discredit on the Society and chauffeurs generally."

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For all Cars and Addresses see Directory weekly.

Belgium to Have a Big Race Next Year.

In connection with the Automobile week at Ostend which is being organised to take place in June, 1913, the Belgian A.C. proposes to hold a race for big cars over a distance of 700 kilometres. The prizes are to be 50,000 francs, 20,000 francs and 10,000 francs.

The San Sebastian "Rallye."

The issue of the awards in the San Sebastian "Rallye" shows that in the general classing the first prize was awarded to the Gregoire "Menagerie" which had taken eleven passengers from Posen to San Sebastian, the second place falling to a Hispano-Suiza, and the third to a Berliet. In the special class for cars starting from Russia, the first prize was won by a Metallurgique with a Russo-Baltique second. In the appearance competition or *concours d'elegance*, the first three prizes in the open car class were carried off by Metallurgiques, while in the closed car class a Delage was first and Metallurgiques second and third. An appearance competition was also held for cars that had not taken part in the "Rallye" and in this the open car class was won by a Rolls-Royce with a Hispano-Suiza second. Among the closed cars Renaults took first and second prizes, while the third and fourth awards fell to Rolls-Royce cars.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Triptyques for Side-Cars Entering France.—The Association has for some time past been in communication with the French authorities regarding the position of motor cycles, with side-cars attached, passing into France, and has now been informed that henceforth owners of such vehicles may utilise the triptyque system whereby the duties leviable may be deposited with the Association before leaving England, thereby avoiding any delays which may be caused by having the machines weighed and examined, and the duties deposited at the port of entry.

Special Road Warnings.—Members using the road between Lancaster and Bolton-le-Sands are advised to drive very carefully after dark. The road is being laid with tar macadam, which is being tipped in heaps on the sides of the road. Owing to the blackness of this material, it is very difficult to see these obstructions at night

The Association is informed that care is necessary in passing through the villages of Long Ashton and Cleve (on the main Bristol to Weston-super-Mare road). This warning applies particularly to motor cyclists.

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CORRESPONDENCE.

A Mileage Problem.

Sir,—I write to ask you if you or any of your readers can explain the following:—

Proceeding from London to Brighton, just before reaching Hands Cross Village, the mile post reads 19 miles to Brighton and 33 miles from London, the next mile post on Hands Cross Hill reads 16½ miles from Brighton, and 34 miles from London, thus making 52 miles from London to Brighton and the other 50½ miles. Therefore, going to Brighton, you do 2½ miles between the mile posts, reading then 19 and 16½, and when returning you only do one mile on the same distance.

Lee Green. W. J. H.

"A Simple Story and its Moral."

Sir,—After reading the above in your issue of the 7th ult., I am still in doubt as to what the moral may be. If it be, as I surmise, that a spare tyre should always be carried, I am not disposed to accept it. Alternatively I should recommend the use of good tyres, well up to the weight imposed upon them. I have followed this plan myself for 15,000 miles without a single mishap, and am no more disposed to encumber and disfigure my car with a spare tyre, or worse, a spare wheel, than I am to walk down Piccadilly in a fireman's helmet as a safeguard against a chimney-pot which might possibly—and it *is* possible—fall on my head.

Carrying a spare tube and the means of fitting it is a different matter.

Hampstead, N.W. B.

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MOTOR BOATING.

The British International Trophy.

SOME interesting details are to hand regarding the British International Trophy races held at Huntingdon Bay, L.I. near New York, at the beginning of September. In each of the three races there were five competitors, America being represented by Count C. S. Mankowski's "Ankle Deep," Mr. J. Stuart Blackton's "Baby Reliance II" and Mrs. Paul H. Blackton's "Baby Reliance III," while Mr. Mackay Edgar's "Maple Leaf IV" and the Marquis of Anglesey's "Mona" successfully carried the British flag. In the first race, on August 31st, the winner was "Baby Reliance II," whose elapsed time for the thirty nautical miles was 48 mins. 39 secs., "Mona" taking second place, 56 mins. 38 secs., while "Maple Leaf" which started 21½ mins. late, was third in 1h. 11m. 1s.; the other two boats having trouble during the race, and lost a good deal of time. In the second race on September 3rd, "Maple Leaf" was first in 1h. 6m. 50s., "Mona" was second, although she had lost 8 mins. at the start, in 1h. 9m. 54s., "Ankle Deep" third in 1h. 11m. 29s., "Baby Reliance III" fourth in 1h. 12m. 10s., and "Baby Reliance II" fifth, 1h. 14m. 16s. In the third race on September 4th there were only two finishers, "Maple Leaf" with an elapsed time of 48 mins. 15 secs. being first, and "Baby Reliance III," 51 mins. 46 secs. "Mona" and the other "Baby Reliance" broke down after the second round, while "Ankle Deep" retired during the fourth round. Of the three races the last was the fastest and four of the boats accomplished their best rounds during this day. In the series of three races the fastest speeds over any one round were "Baby Reliance II" 29·882 knots, "Ankle Deep" 38·905 knots, "Maple Leaf IV" 37·9746 knots, "Baby Reliance III" 37·088 knots, and "Mona" 31·8773 knots. The best speed over the full course was "Maple Leaf's" 37·583 knots, "Baby Reliance II" being second with 37·126 knots, "Baby Reliance III" third with 36·847 knots, and "Mona" fourth with 31·802 knots. Up to the time of her breakdown in the last race "Ankle Deep" had covered a distance of 22⅔ nautical miles at an average speed of 38·719 knots.

The B.M.B.C. Burnham Meeting.

LAST week-end saw the holding of the annual three days' regatta of the British Motor Boat Club at Burnham-on-Crouch, which, as usual, practically marks the end of the motor boating season. On the first two days the weather was bright, although a keen easterly wind made its presence felt, the sea being so rough on Saturday that two events had to be cancelled. As is almost standard practice with the B.M.B.C., the programme commenced on Thursday morning with the event for cabin cruisers, and half-a-dozen set out to cover a course of 14·6 nautical miles. Mr. T. A. Comber's "Flora" was first home, followed by Mr. George Paxton's "Braemar," and on the handicaps being worked out it was found that "Braemar" was the winner, Mr. H. Brown's "Flonora" taking second prize, and "Flora" third; Mr. L. Waterhouse's "Amice," which was second on the handicap, had to suffer disqualification for exceeding her declared speed. In a race for boats with engines not exceeding 800 cc. cylinder capacity, there were only two finishers, and Sir J. M. Domville's "K.M." took the Bestic Challenge Cup for the first boat in, while Mr. T. Desno's "Secret" secured the Commodore's Cup under the M.M.A. time scale. It had been hoped that "Maple Leaf IV" would have raced for the A. J. Wilson Challenge Cup, but she could not be got ready in time, and Mr. Mawdsley Brooke's "Baby VI" had an easy win, while in a handicap in connection with this race Mr. O. Martin's "Baby V" was first. This latter boat had another success in the race for the over twelve knot class, in which seven out of the dozen entrants crossed the line. Mr. W. Schmahl's "Vice Versa" was second, and Mr. W. B. Tattersall's "Spitfire" third. In a match under M.A.A. time scale between Mr. T. A. Comber's



The return of "Maple Leaf IV" to England after securing the British International Trophy in America. Her first appearance at Burnham-on-Crouch Meeting last week-end.

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"Esperto" and Mr. Hollingsworth's "Mouse" victory went to the latter, while the last race of the day, for the 21-ft. class, was a walk-over for Mr. Lance Gamble's "Dyack." In the Cabin Cruisers race, which opened Friday's programme, "Amice" was the winner, with "Flonora" taking second prize, and "Braemar" the third. This was followed by a handicap for boats under nine knots, which was won by Mr. Mawdsley Brooke's "Betenpete II," with Mr. A. J. Wilson's "Splash" second. A handicap for boats over 15 knots drew a quartette of starters, and Capt. C. France's "Falcon" was the winner, "Baby VI" taking the second prize, and "Dyack" third. Then followed an event for boats between 9 and 15 knots, in which "Vice Versa" was successful, with the second prize going to "Baby V," and the third to "Spitfire." In a race under M.M.A. rating and time scale, "Vice Versa" secured another win, with "Mouse" second, while in the last race of the day, for the 21-ft. class, "Dyack" and "K.M." were the only starters, and the former won by nearly 4 mins. over a course of five nautical miles.

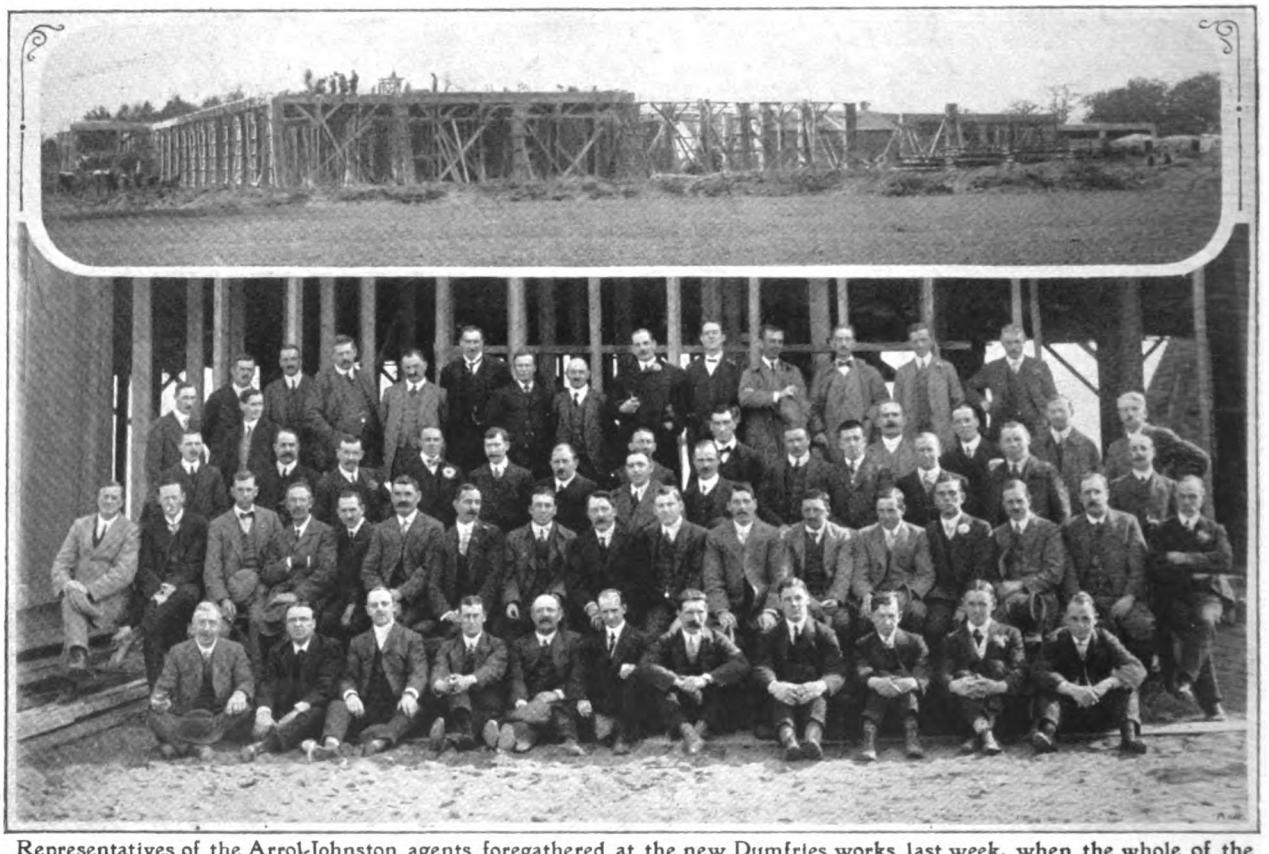
On the closing day, Saturday, the Cabin Cruisers raced for a cup offered by the S.M.M.T., and it was won by Mr. O. B. Coll's "Hirondelle," with Mr. W. M. McClean's "Allegro" second, and "Braemar" third. Mr. A. J. Wilson's "Splash" won the race for boats under 9 knots, while in the handicap for boats between 9 and 15 knots speed "K.M." was the winner, with "Baby V" second and "Vice Versa" third. The handicap for boats over 20 knots only drew two entrants, Mr. Brooke's "Baby VI" and "Dyack." The former had an easy win, while the other boat after doing two rounds was stopped and awarded the second prize. The International Flying-Mile Championship we refer to elsewhere, and in the flying-mile event for the 21-ft. class the only starter was "Dyack," and her speed was returned at 21 knots. Half a dozen craft crossed the line in the over 12 knots event, in which "Baby V" had a narrow victory by only 7 secs. over "K.M.," while "Cordon Rouge" was a good third. "Vice Versa" won a special prize under M.M.A. time scale.

Motor Boat Speed Tests.

THE postponed contest for the *Motor Boat* Sea-Mile Trophy was held by the Royal Motor Yacht Club at Burnham-on-Crouch on Friday of last week, when Mr. Mawdsley Brooke's "Baby VI" was the only competitor to put in an appearance, and of the six runs over the measured mile her mean speed worked out to 30·659 knots, the slowest run being at the rate of 30·100 knots and the fastest at 30·981 knots. On the following day the British Motor Boat Club held their Flying Mile Championship, and the entrants were Mr. Mackay Edgar's "Maple Leaf IV" and "Baby VI." "Maple Leaf's" speed was returned at 36·36 knots and "Baby VI" at 24·48 knots.

A Trans-Atlantic Motor Boat Race.

FOLLOWING the successful completion of the trans-Atlantic trip of the American motor boat "Detroit" from New York to St. Petersburg, Capt. Day, who was in charge of the craft, has suggested that an international motor boat race from New York to Paris should be organised next year. He hopes that the Automobile Club of France and Mr. Gordon-Bennett will put up prizes. Capt. Day said that the 6,008 miles trip of the "Detroit" had been completed on 1,400 gallons of gasolene.



Representatives of the Arrol-Johnston agents foregathered at the new Dumfries works last week, when the whole of the 1913 output of Arrol-Johnston cars was allotted, and a very enjoyable time was spent by way of side issue to the business purpose of the visitors, who also went on to the Paisley works. Above is seen the work in progress on the new building of the Company at Dumfries, which is to cover 2½ acres.

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New Speed Limit at Windsor.

An order has now been issued imposing a 10-mile limit on certain portions of Peascod Street, St. Leonard's Road, and Osborne Road, New Windsor.

Mr. Bruce Brown Killed.

By cable from Milwaukee, it is announced that while Mr. D. Bruce Brown was practising for the Grand Prize and Vanderbilt races, his car left the road and overturned. The driver, who had twice won the Grand Prize, and took part in the French Grand Prix race at Dieppe, was killed.

London's New Index Mark, L.H.

For the ninth index mark required by London, the Local Government Board has sanctioned the use of the letters LH and not LG, as anticipated, this latter combination being reserved for special use.

R.A.C. Golfing Society.

Arrangements have been made for the Autumn Handicap to be played on Tuesday next, the 8th inst. The second Knock-Out Tournament for the Captain's prize will again be held and worked on the same lines as last year, the first drawn of any pair to propose the course, and if not agreed the match to be played at Bleakdown. The first to win a hole after a tie will be the winner. Entries will be received not later than October 20th, the draw taking place on October 21st. A selling sweep is to be arranged. Arrangements are now being made with well-known golf clubs as to the fixture list for 1913.

The I.A.E. Graduates, London Section.

A very strong programme for the winter session has been drawn up by the London Branch of the Graduate Section of the Institution of Automobile Engineers, which was opened on Saturday last by a visit to the London Aerodrome, Hendon, while the next visit will be on November 2nd to the National Physical Laboratory, Teddington. With regard to the papers, these have been arranged so as to cover a discussion of the steps involved in the manufacture of a year's output of 750 15-h.p. chassis, selling at £350. The various members of the Committee will contribute one paper a month, the subjects being Works Organisation, Design, Preparations for Manufacture, Manufacture and Equipment, Stores and Viewing, Assembling and Erecting, Testing, and Selling. The first paper was given on Thursday last, and the meetings will be continued on the first Thursday of each month. A Bohemian Concert is being held on Friday, the 18th inst., at the Holborn Restaurant. Tickets may be obtained from the Hon. Secretary, Mr. H. Burchall, 119, East Sheen Avenue, Sheen.

The Daimler Co.'s Scholarships.

The result of the Annual Competition for the Daimler Works Scholarships, which was completed on September 5th at the Daimler Works, Coventry, under the supervision of Dr. H. S. Hele Shaw, F.R.S., and Prof. W. Morgan, B.Sc., has now been announced, as follows:—

Senior—Edward John Surman, B.Sc. (Eng.), Hons.
Junior—Walter William Scott Davidson, B.A. (Mechanical Science Tripos, Cambridge).
Junior—Lucien Armand Bollack; Edward Percival Naish.

The selected candidates were required to work two papers dealing with question of general engineering interests, and they had also to undergo a *viva voce* examination.

Petrol Fire Dangers.

By way of opening its autumn session last week, the British Fire Prevention Committee carried out an important series of official fire tests as to the possibility of extinguishing large and small petrol fires with a chemical foam, the series comprising some 25 tests, varying in area from an ordinary bucket to a motor garage of 15 ft. by 20 ft. with 20 gallons of petrol flooded, and a basement with 50 gallons of petrol flooded. The tests were conducted at the Committee's Regent's Park Testing Station, and were watched by representatives of various Government departments, including the Royal Aircraft Factory.

The Proposed White City Motor Show.

Mr. Rudolf Hagen sends us from Byron House, Fleet Street, particulars of the scheme for a Motor Exhibition, to accommodate those firms who have been crowded out at Olympia owing to the want of space. The idea is that, if a sufficient number of firms support the proposal, the building known as the Uxbridge Road entrance to the "White City" should be engaged. It is claimed that this would make an ideal venue for an exhibition of this nature, being not far from Olympia and very accessible by tube, 'bus or tram November 8th to 16th are mentioned as the dates during which the exhibition would be open. Of course, the exhibition would be independent of the S.M.M.T. Olympia Show.

A. Darracq and Co. (1905), Ltd.

A dividend at the rate of 7 per cent. per annum has been declared on the preferred ordinary shares for the half-year ended September 30th.

Roundabout Notes.

It was gratifying to note that Mr. Woollen had recovered sufficiently from his motor car accident to enable him to be present and take the chair at the last meeting of the Executive Committee of the Cycle and Motor Trades Benevolent Fund.

Goodyear's steel wheels were fitted to the Sunbeam car which set up new records for 12 and 13 hours at Brooklands the other day.

Having obtained a good position at Olympia, Messrs. Riley (Coventry), Ltd., intend to show a comprehensive range of their productions. We understand that the latest Riley models will embody a number of improvements and refinements such as are only, as a rule, to be found on cars of high power and price.

On Monday of last week some 70 representatives of the principal motor agency firms met at Dumfries and were taken out to the New Arrol-Johnston works which lie near the historic smithy at Gretna Green. After taking note of the way these splendid works, which cover 2½ acres, are progressing, the party returned in Arrol-Johnston cars to Dumfries to lunch and were then taken on to Glasgow. As a result of a visit to the Paisley works on Wednesday morning orders covering the whole of the 1913 output were booked up. Indeed, several agents had to be content with booking a portion of their estimated requirements. Mr. Tom Garner, of Manchester, for instance, wished to contract for 75 cars, but had to be content with making a contract for 50.

Mr. Sidney G. Cummings, the popular agent for S.C.A.R. cars, left London on Thursday last for a tour, which will probably run to well over 3,000 miles, with the object of calling on the principal agents in England. His mount is a standard 15·9-h.p. S.C.A.R. car, and should any agent desire to view and try this car, if he will address the College Motor Co., 115, Fulham Road, London, S.W., his request will receive prompt attention.

Although there is a rumour as to increases in the price of tyres, this will not affect the recently issued reduced price list of Messrs. Spencer, Moulton, and Co., Ltd., 79, Cannon Street, E.C. The firm have just issued an interesting leaflet dealing with their new removable flange rim.

There is one disadvantage to a motor trader using a Cadillac according to Messrs. J. Blake and Co., of 22, Rodney Street, Liverpool, and that is the aversion the drivers afterwards show towards a car with a starting handle. They have had several disputes among their drivers each wanting to take a Cadillac. This firm, who are agents for Cadillacs, state that they have never had a single case of failure of the self-starter and their contingency starting handle hangs on the wall of the garage, and has never been used.

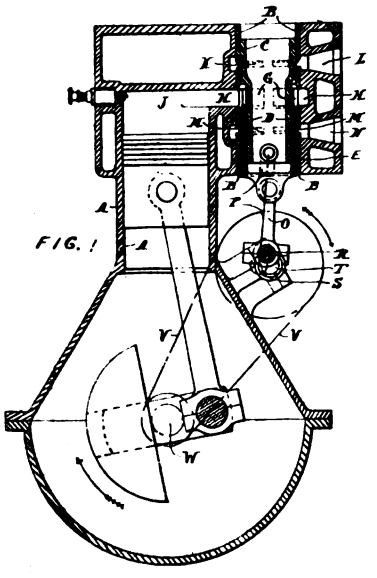
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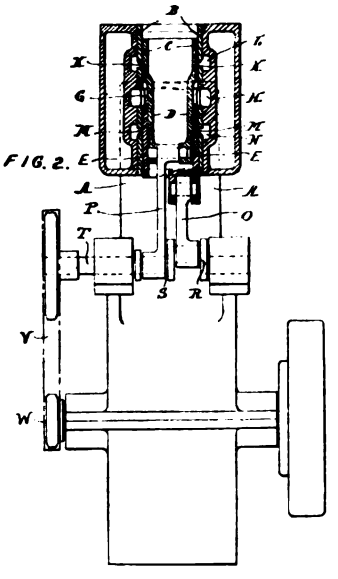
BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application ; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

24,705. November 7th, 1911. Improvements in Valves and Valve-gear for Internal Combustion Engines. The Albion Motor Car Co., Ltd., and T. B. Murray, B.Sc., South Street, Scotstoun, Renfrew, N.B.—This invention has for its object to provide in four-stroke cycle internal combustion engines an improved form of valve mechanism of piston type, so that large port areas rapidly opened and closed are provided, while constricted or pocketed areas in the combustion space are avoided. Fig. 1 is a transverse vertical sectional elevation of a single cylinder engine provided with the improved valves and valve-gear. Fig. 2 is a sectional side elevation. The valve cylinder—axially parallel with the engine cylinder, A—is provided with a fixed ported liner, B. The outer end, C, of the piston valve is provided with the usual piston rings, and closely fits within this liner, B. The inner end, D, of the piston valve is of reduced diameter and fits within a sleeve, E, which in turn externally fits within the liner, B. Usual piston rings are provided between piston valve and sleeve, and sleeve and liner. Between the enlarged end, C, of the piston valve and the end of the sleeve, E, adjacent thereto there is thus an annular space. This space communicates by ports, G, through the liner with an annular port, H, opening into the combustion space, J, of the engine cylinder, A. In such position as to be uncovered and covered by the movements of the valve end, C, are a series of ports, K, in the liner communicating with an annular exhaust port, L. Similarly placed to the end of the sleeve, E, are ports, M, in the liner communicating with an annular inlet port, N. The sleeve, E, and piston valve, C, D, are operated by connecting-rods, O, P, from cranks, R, S (at about 80° to one another), on the lay-shaft, T, driven at half-speed by chain gear, V, from the engine crank-shaft, W, in usual manner. As the piston valve, C, D, moves out (that is away from the lay-shaft, T) it uncovers the exhaust ports, K, to the space between valve and sleeve and so to the cylinder ports, G, and as it moves in, closes them. Similarly, the sleeve, E, in moving in (that is towards the lay-shaft, T) uncovers the inlet ports, M, to the cylinder ports, G, and in moving out covers them. The cranks, R, S, are placed for the inlet of fuel and discharge of exhaust in the direction of the arrow in Fig. 1.—Sept. 11th, 1912.





19,872. Sept. 6th, 1911. Date claimed under International Convention, April 22nd, 1911. A new or improved Rotary Force Pump for delivering liquid to several different places. The Daimler Motoren Gesellschaft, Fabrisstrasse, Unterturkheim, Germany.—This invention relates to a force pump in which the piston is formed as a toothed wheel and rolls within an internal-tooth gear ring on the pump-casing. The meshing of the teeth forces the liquid contained in the spaces between the teeth into conduits running from those spaces and leading to the desired places. The toothed disc is arranged to rotate eccentrically in a hollow disc which is concentrically rotatable in the casing. The teeth of the piston project laterally beyond the periphery of the hollow disc, so that they can mesh with the internal gear of the casing. The outer casing may have its upper part shaped as a tank for containing the liquid to be forced by the pump. The number of parts capable of being lubricated by such a pump is unlimited, as the piston and the internal-tooth gear of the casing can have as many teeth as desired. By varying the sizes of the ports and conduits the oil delivery may be regulated or varied as desired. Fig. 1 is a vertical section upon the line, A, B, of Fig. 2, and Fig. 2 is a front elevation of a pump with the cover part removed. The casing, *a*, is provided with internal teeth, *b*. A concentric hollow disc, *c*, is fixedly connected with the rotary-shaft, *d*, and a toothed disc, *f*, is rotatable about its eccentrically-mounted spindle, *g*, in the hollow of the disc, *c*. This toothed disc, *f*, projects beyond the periphery of the hollow disc, *c*, so that its teeth may mesh with the teeth, *b*, of the casing, *a*. A port, c^1, is formed in the upper wall of the disc, *c*, through which passes the oil contained in the upper or cover part, a^1, of the casing, which part is formed as a container. The spaces, b^1, between the teeth, *b*, thus become filled with oil, and when the pump is working this oil is forced from each of such spaces through a respective port, b^2, into a pipe, *h*, which leads to a part to be lubricated. Upon rotation of the shaft, *d*, the hollow disc, *c*, rotates in the casing, *a*, and carries round the spindle, *g*, of the toothed wheel, *f*, so that the latter rolls within the internal-tooth gear, *b*, of the casing, *a*. Thus, as soon as a tooth of the toothed wheel, *f*, enters a space, b^1, it displaces the oil contained in this space and forces it through the pipe, *h*.—Sept. 11th, 1912.

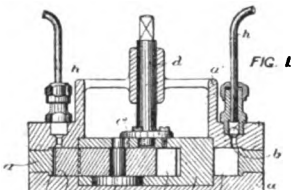
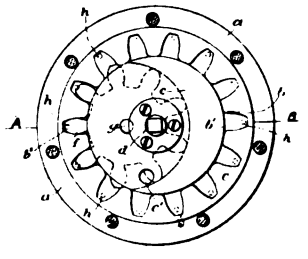


FIG. 2.



Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published September 26th, 1912.

19,452. Soc. Anon. du Temple. Hydraulic change-speed gear.
19,472. L. Brun. Reversible rotary m.
19,567. W. Kieling. Valve mechanism.
19,740. F. W. Berwick and S. De Beer. Carburettors.
19,778. J. J. Rowe. I.C. engines.
20,155. Daimler Motoren Ges. Anti-vibration device for doors.
20,173. S. H. Shepherd. Brakes.
22,343. E. C. Newcomb. Carburettors.
22,409. A. E., H. L. and H. O. Short. I.C. engines.
24,380. H. Aron. Electric lamps.
24,705. Albion Motor Car Co. and T. B. Murray. Valve-gear.
24,776. A. T. Collier. Magnetic clutches.
24,866. C. S. and J. A. Challiner. Wheels.
25,161. H. Diehl. Magneto ignition.
27,784. W. E. Martin. Carburettor.
29,154. J. G. A. Kitchen and I. H. Storey. Resilient wheel tyres.

Published October 3rd, 1912.

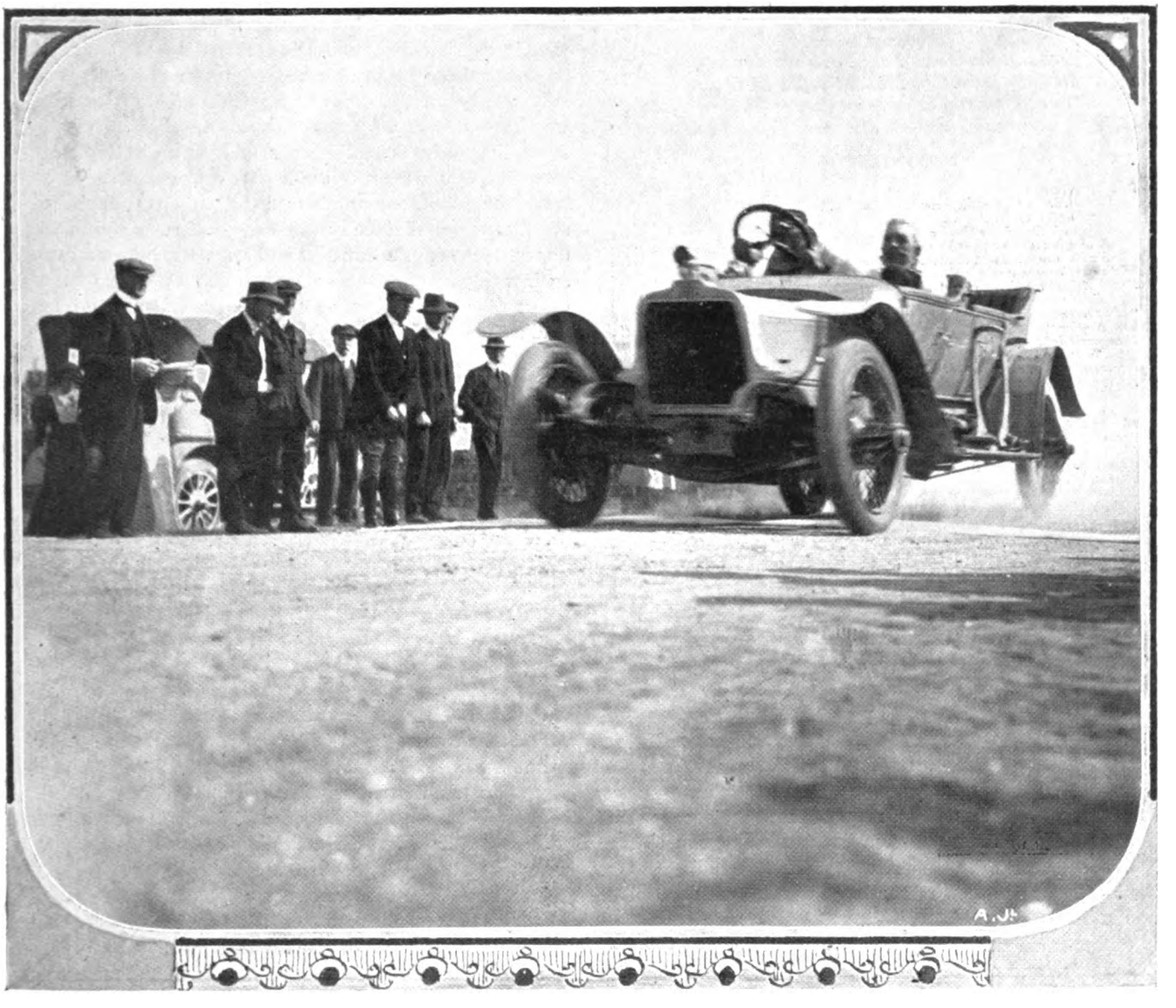
11,573. Austin Motor Co. and H. Austin. Change-speed gear.
18,048. J. V. Pugh. Detachable wheels.
18,213. A. E. de Souza. Shock absorber.
19,739. F. W. Berwick and S. de Beer. Carburettors.
19,813. W. J. Frith. I.C. engines.
19,938. S. Barnett. Rims and detachable rims.
20,025. J. L. Cloudsley. Two-stroke cycle I.C engines.
20,050. H. Lindblom. Valve gear.
20,256. J. D. Roots. I.C. engines.
20,390. A. and C. B. Lines. I.C. engines.
20,393. A. and C. B. Lines. Two-stroke-cycle I.C. engines.
20,615. G. W. Hutchinson. I.C. engines.
22,155. F. H. Tanner. Cylinders.
24,324. A. G. Langdon and S. Kellaway. Clutch and reversing gear.
24,941. A. E. Fletcher. Sparking plugs.
28,392. G. O. Houghton. Silencers.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 614. (No. 41, Vol. XVII.)] OCTOBER 12, 1912. [Weekly, Price 3d. Post Free, 3½d.



SPEED TRIALS IN SOUTH AFRICA.—The Talbot car crossing the finishing line, as referred to in our special correspondent's South African letter (page 1184). Note the density of the mine dust raised by the competing car.

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The AUTO (YELLOW COVER) MOTOR JOURNAL.

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Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

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Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

The L.C.C. and the Motorist.

On several occasions during the past few months we have had to comment somewhat strongly on the extraordinary policy of persecution conducted by the L.C.C. against the motorist who is so unfortunate as not to see eye to eye with the Council's legal advisers in the matter of the interpretation of the laws affecting the ownership and use of the motor vehicle. Still another case of the character we have in mind has occurred within the last few days, and one in which, it seems to us, the Council has outdone itself in the sheer brazen impudence of its action. The case was one in which the Council summoned a Mr. Bidwell for keeping a motor cycle without a licence. According to the newspaper reports of the case, the defendant contended that he was not liable, as he had been the holder of a licence for a motor car, with which he parted on the day before he acquired the motor cycle which was the subject of the Council's action. His point was that the three-guinea licence paid for the motor car covered the one guinea due in respect of the cycle. He complained, very justly as we think, that the procedure of the L.C.C. in summoning him after his explanation without any letter of warning, amounted to intimidation. The magistrate, in deciding the case, said that an endeavour was being made to extract something from the Motor Car Act which could not be extracted from the old statutes relating to the licensing of vehicles. Supposing a carriage proprietor disposed of one vehicle, could he not substitute another? He favoured the view of the defendant that the greater included the less. On this the Council's solicitor said that he should ask for a case to be stated, and in reply the magistrate said that he would grant it subject to it being taken upon the assumption that the car was disposed of before the cycle was acquired, but if the defendant considered his pocket, it would be cheaper to pay the licence duty for the cycle. Accordingly, the defendant consented to an order being made for the payment of the licence duty claimed.

In our view, no words can be strong enough to adequately describe the crying scandal of such action as this on the part of a licensing authority. It brings a case against a private person—a case which in view of the Court adjudicating has no tenable basis at all, and by holding out the threat of taking it to a higher Court, with consequent expense out of all proportion to the importance of the issue involved, it succeeds in defeating the ends of justice. That is the plain English of it, and unless this case is taken up by the R.A.C. or the A.A., or both jointly—provided it is legally competent for it to be re-opened—we shall indeed have to ask ourselves for what our associations exist. It does not matter in the least whether the defendant in this case is a member of any club or association at all. If he is not, then he probably by this time sees the error of his ways, and will repair the omission without delay. That, however, is not the point. The L.C.C. has of late shown a disposition to stretch the letter of the law to its utmost limits where the motorist is concerned. In several cases it has been headed off by the decisions of the Courts, but still it goes on with what we have described as its policy of persecution and this has about reached a culminating point, and it is only conceivable that payment by commission or some other form must attach to the collection of such claims. It would be a case of "heads I win, tails you lose" for the collector, as the costs would not come out of his pocket in any case. In the interests of all motorists who live within its jurisdiction, this last phase of L.C.C. activity must be taken up and tested to its end. Otherwise, the conditions will become intolerable. In one way, the motorist can show his disapproval of the Council's policy, and that is by declining to take out his licences within

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the county. By so doing the Council may be brought to realise that it is being very badly advised by its solicitors' department, and we may hear less of these utterly vexatious prosecutions.

◆ ◆ ◆

Driving Tests for Motorists.

The *Daily Mail*, which is certainly not a journal unfriendly to the motorist, has apparently blossomed out as a whole-hearted advocate of compulsory driving tests for motorists prior to the issue of licences. Naturally, the argument is that such compulsory tests would tend to make the roads safer, inasmuch as it would ensure that none but skilled drivers would be using them. As an academic argument this is all very well in its way, but from the practical point of view there is nothing in it at all, as we have on more than one occasion endeavoured to point out. Let it be understood that we are entirely against the principle as a principle, but simply and solely because it would inevitably be the cause of much inconvenience and probably further expense to the motorist, while it would not help in the slightest degree to make safer the highways of the country. It cannot be too directly insisted upon that it is not the novice or the relatively unskilled driver who is the main source of danger. He is usually painfully careful in his driving, and there is nothing to be apprehended from him until such time as he feels himself expert enough to take chances. Certainly nine-tenths of the dangerous driving of motor vehicles is done by drivers who have attained to a high degree of skill in the conduct of their vehicles. With a supreme confidence in their own ability, they are too apt to forget that every driver they meet may not be possessed of the same skill or nerve as themselves, and in cutting things too fine they too often lay themselves out to ask for accident. Now, how would a compulsory driving examination help to remove that—the most prolific source of danger on our roads? Not in the very least. It is hardly likely that such a driver, with the examiner on board his car, would set out to demonstrate how closely he could run to accident without dropping over the border. On the contrary, the examiner would pass him with flying colours, possibly making a mental note that this was the best driver, and the most careful, who had been through his hands for a long time. There are other objections to the scheme of compulsory test, but the main one is this feature of its utter uselessness in its relation to the public safety.

There has been quite a small volume of correspondence in the columns of our contemporary, all bearing on the same subject, and mainly in favour of the scheme. Much of this correspondence is interesting in its way, but there is one point on which it seems to us that many of the advocates of compulsory examination come down badly. The point made is that no person should be allowed to take charge of a car on the road until he has proved himself capable of doing the right thing at the right moment *even in a tight corner*. That or a similar phrase is used in more than one letter. Now, one would think that it was impossible to take a car on the road without getting into what is euphemistically called a tight corner; it seems quite a habit to suppose that this is so. Our own experience of motoring—which is not a small one—leads us to believe that the tight corner does not come along so very often—say, perhaps, once in a thousand miles or so. Now, is it proposed that the applicant for a licence should carry the examiner with him week in and week out until such time as the requisite tight corner shall be got into for the motorist to demonstrate his aptness for extricating himself and his car? Or is the proposal that the examination should take the form of a gymkhana, in which dummy policemen shall be slid out on wires across the path of the car for the examiner to avoid? But it is unnecessary to argue the matter farther; we are absolutely unconvinced that there is salvation from the dangers of the road in any sort of driving test that can be devised.

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The Liability of the Owner.

In one letter written *apropos* this driving test business, it is suggested that when accidents occur when the chauffeur is driving and the owner is on the car, the latter should be made answerable for the consequences. The argument is that chauffeurs, obviously, have to obey orders, and one is quite safe in inferring that owners endorse their chauffeurs' actions. Such a responsibility would certainly require qualifying.. Carried to its logical conclusion, it means that if a chauffeur runs down and kills someone, his action is fully approved and endorsed by his employer! Which, to say the least, is absurd and impossible. Certainly, circumstances do arise in which the employer should be held responsible for the actions of his servant—as a matter of fact, he is so responsible so far as the process of the civil law is concerned—but to lay it down he should take the onus of every offence his employée *may* commit is carrying the thing a little too far. *Apropos* this question of the liability of the owner for the acts of his chauffeur, a case in point was decided on appeal to the Norwich Quarter Sessions recently. The owner of a car had been convicted by a local Bench of aiding and abetting his chauffeur in committing a breach of the law in travelling too fast and driving recklessly. The Master of the Rolls, who presided in his capacity as chairman, said that to hold that an owner because he was inside the car when his chauffeur drove on the wrong side of the road, was aiding and abetting, was putting too great a strain on the language of the Act. It was going too far to say that a chauffeur under such circumstances could involve his master in the liabilities imposed by the statutes. If an owner of a car said to his chauffeur, "The station is 20 miles away, and there are only fifty minutes to do it, go and get there in time," he might very reasonably be held to aid and abet in a breach of the law. In the case before the Court, however, the owner was not a driver, and was not in any way cognisant of the niceties and difficulties of motor driving. He was merely sitting inside his car at the time his chauffeur was alleged to have travelled too fast. Under

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these circumstances there was no case to answer. The decision calls for no comment, except that it seems to dispose at once of the contention that the *Daily Mail's* correspondent puts forward—that if the owner is in the car he should at all times be personally responsible for every action of his driver.

• • •

A Magistrate on Street Dangers.

A Greenwich stipendiary had some pertinent remarks to make the other day on the subject of dangerous driving. Drivers of motor vehicles in London, he said, drove with wonderful skill and tolerable safety, and the safety would be complete if everybody else would do the right thing—but they would not. A man walked across the road; he hesitated, and was killed. If he had not hesitated he would still be alive. The motor car driver should always reckon on the possibility of other people doing what was wrong. So far we are in agreement with the Greenwich magistrate, but he went on to say that he thought it might be well if there were a rule that mechanically-propelled vehicles should be compelled to get out of the way of every other form of traffic. That, we think, is an impossible doctrine, and if it were adopted would make traffic simply and utterly chaotic. It would put a premium on obstruction, for one thing, and would lead to such congestion of the streets that traffic would never get through at all. Mr. Symmons has taken his idea from the rule of the road at sea, forgetting, apparently, that the cases are not in the least degree analogous, which is obvious when a little thought is given to the subject.

What is wanted is such regulation of the traffic as will ensure the least possible congestion and, above all, an educating up of all road users to that doing of the right thing to which the magistrate referred. Once get that idea firmly rooted in the minds of every unit of the London traffic—or any other traffic for that matter—and the whole problem of the safety of the roads would be solved. But, we fear, that will only be *un fait accompli* in Utopia.

• • •

Sir George Gibb and the Road Board.

That enterprising journal, the *Daily Mail*, has set out to interview Sir George Gibb on the policy of the Road Board, over which he presides in his capacity of Chairman of that useful body. Naturally, Sir George was not able to give his interlocutor any information which is new, or that we have not been quite conversant with for a considerable time, but there was one point upon which he touched which is of distinct interest in view of the discussion which has lately taken place on the subject of the increased cost of upkeep of suburban roads consequent upon the growth of heavy motor traffic. Sir George pointed out that under the Act of Parliament constituting the Road Board, the Board is prohibited from making grants for maintenance. It is authorised to make advances in respect of the construction of new roads or the improvement of existing roads, and to contribute to the costs of maintenance of such new roads, but not of old ones. In the course of the interview he said:—

"There is a legal liability upon highway authorities to maintain roads for all traffic. It is true that many roads are now unsuitable for motor traffic. They are not strong enough for modern requirements. Many of them have been allowed to get into a very weak condition. While it is impossible not to feel some measure of sympathy for the small local authorities who are called upon to pay extra for road maintenance owing to motor traffic, their duty to maintain the roads is clear, and relief towards maintenance expenditure can only be given by an alteration of the law by Parliament. But highway authorities can protect themselves by raising their standard of construction when re-coating the roads. This would lead to cheaper maintenance than continuing old methods of renewal of surfaces. In fact, the methods of maintenance need to be modernised. The Board advances money at low rates of interest, and in some cases without interest, for improvements which are likely to increase the life of surface coatings in a greater ratio than the increase of cost."

That is all perfectly clear, but what we should like to know is—how, and where, and by whom is the line drawn between "improvement" within the meaning of the Act and the "maintenance" of which Sir George speaks? In a recent issue of the AUTO. we drew attention to the hardship inflicted on a local road authority which had provided highways adequate as to foundation and surface for the traffic of a decade ago, but which, owing to the immense growth of heavy traffic within the past three or four years, now finds that it has to meet heavy charges for highway upkeep. We maintain that much of this extra cost comes properly under the heading of "improvement"—it is necessary, that is, to so "improve" the foundations of these roads as to render them fit to carry the heavy traffic of the day. It is quite possible that the constitution of the Road Board and the powers conferred upon it by Parliament preclude it from devoting any sums derived from the petrol and motor taxes to such work as we are discussing—we do not know. But if that be the case, there should be an alteration so that the Board may decide for itself what are works of maintenance and what are improvements.

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N.C.U. and Motor Cyclists.

THE National Cyclists Union has been seeking the co-operation of the R.A.C. with a view to securing an amendment to the law on the following lines:—

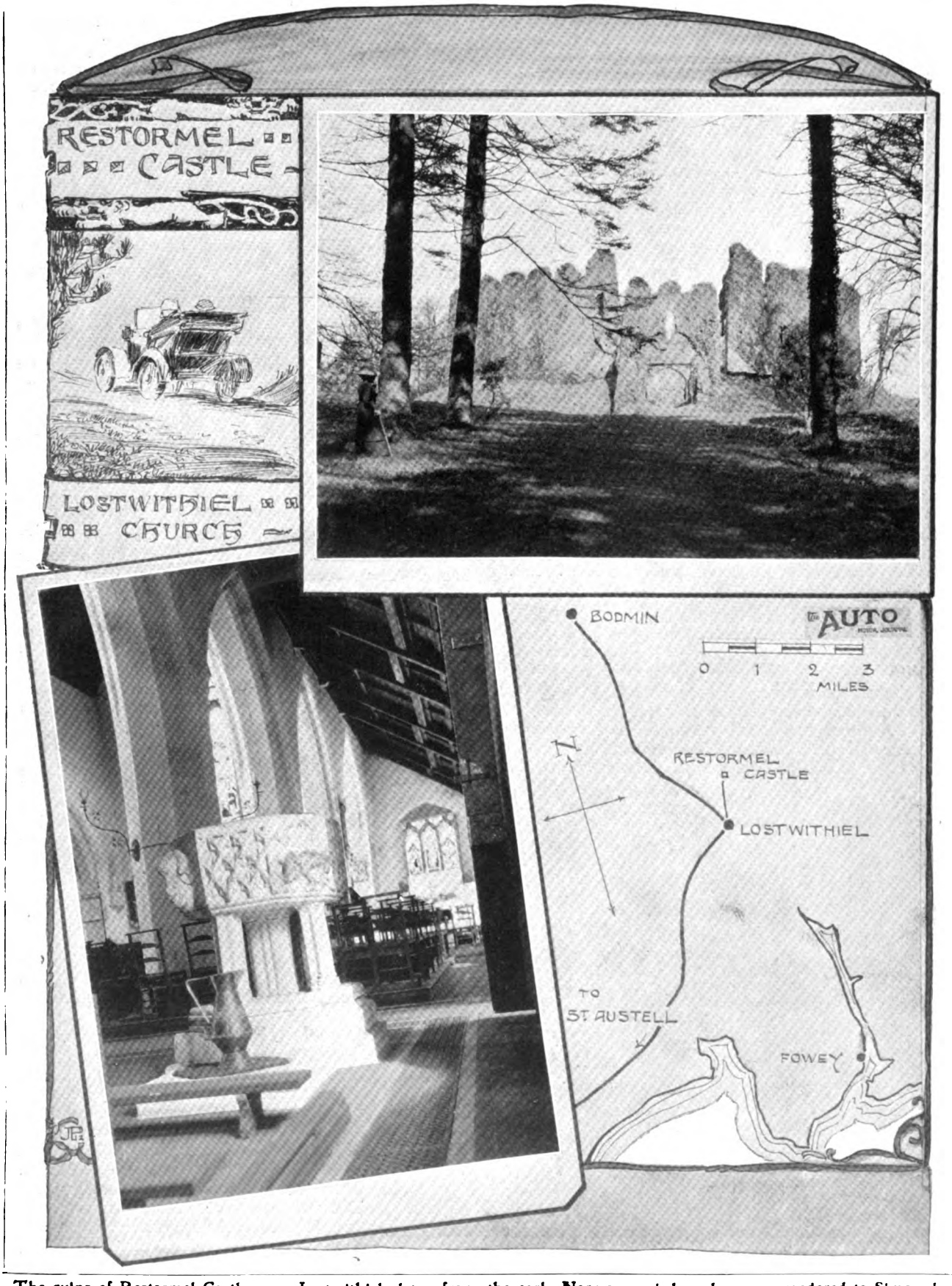
a. The age minimum for licences should be raised, and

b. That in no case should a driver's licence be issued to a person under age unless the parent or guardian of the licensee is held liable at law for any damage caused by his child or ward during minority, and whilst driving a motor cycle.

This letter was referred to the Auto-Cycle Union for its consideration, and in reply the A.C.U. states that its committee is of opinion that the parent or guardian of a licensee being a minor should be held liable at law for any damages caused by the said minor whilst driving a motor cycle. The A.C.U. is not of opinion that there is any necessity for the age minimum to be raised, as it considers that if the above recommendation becomes law it will follow that parents or guardians will prevent their children or wards from obtaining licences unless they are satisfied that they are reasonably competent to drive. The A.C.U. makes no recommendation as to pedal cycles. These views have been transmitted to the National Cyclists Union.

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WITH THE CAMERA AND THE CAR.



The ruins of Restormel Castle, near Lostwithiel, dates from the early Norman period, and was surrendered to Simon de Montfort in 1264. The font is in Lostwithiel Church, in which during the Civil Wars the Parliamentarians are said to have christened a horse by the name of the King Charles. They also blew off much of the roof with a barrel of gunpowder in an attempt to dislodge some prisoners who had taken refuge in the tower.

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SOUTH AFRICA AND MOTORING.

By Our Special Correspondent.

Johannesburg, September 16th.

Blazing the Track.

ALTHOUGH South African motorists have been slow in recognising the potentialities of this country for long distance motor travel, they are not slow in taking advantage of them once they are demonstrated. At present there is a big movement afoot to get better roads, and, as I mentioned in a previous letter, the authorities of the Transvaal are co-operating with those in Natal to make the main turnpike from the High Veld to the coast. A year ago motoring from the Rand to Durban was looked on as something very much out of the usual, but to-day the feat is not only facile but is fashionable. This week a party of members of the Transvaal Automobile Club, including Johannesburg's worthy mayor, Mr. J. Dowell Ellis, returned from a visit to the coast after a most successful journey. Four Talbot cars were used, and all covered the double journey of about 850 miles without trouble. If the powers that be carry out their promise of putting into order the bad parts of the road—generally there is no necessity to do anything to the natural country road—a tour in these parts, from an historic and an artistic point of view, can be commended to English motorists. The scenery, as will be noticed from the accompanying photographs, is charming; the climate at certain seasons is likewise pleasing, and no doubt motorists from oversea will have a warm welcome.

Lieut. Bettington's Death.

The news of the tragic end of Lieut. Bettington while flying at Oxford was received here with the most profound regret, as this promising young officer was known to a large circle. He is the first Rand man to be so sacrificed in the cause of the conquest of the air, and to his father, Col. R. A. Bettington, and his relatives feeling condolence has been extended. Young Bettington acted as galloper to his father in the Jameson Raid, and during the late war held a commission in the Imperial Light Horse. In the dark days of the siege of Ladysmith he proved himself a capable and reliable officer, a gallant and true comrade, and none more than the members of the I.L.H., of whom there are many on the Rand, can regret the untimely cutting off in the prime of promise of Claude Bettington.

Speed Trial.

The official results of the speed competition held on a mile stretch of good road in the vicinity of the mines on the East Rand, are now available, and show that the honours of the day on formula went to Mr. H. Gill with a 10–28-h.p. Austin, and the fastest time put up was by Mr. C. Hoare, driving a 15-h.p. Talbot. The latter did the mile in exactly a minute, which to you in England, where there are properly laid-out tracks, and all other facilities for speed merchants, may seem easy; but here, under the existing conditions, it is put down as no small doing.

Coming Into Line.

The Johannesburg Town Council have now under consideration the introduction of a number of motor 'buses to supplement the present tramway system, and to link up the many districts of the eighty odd square miles that come under municipal control, but do not at present justify the heavy expense of laying down a tramway track if the position can be met by the provision of motor 'buses. The Committee of the Council have recommended the expenditure of £8,000 for the purchase of six 'buses. This coming into line with modern practice has been brought about by the recent visit to England of Professor J. H. Dobson, general manager of the Johannesburg trams, who had the opportunity of studying the advantages and conditions of the system. The extent to which the motor 'bus has monopolised traffic in London is now recognised, and the effort by the Johannesburg Town Council is now in the direction of finding out how far this method of traffic can be applied here. In such an extensive area it is realised that this method of transport would be of valuable use as auxiliaries for handling special traffic such as to race meetings or to centres of resorts not reached by the ordinary tramway service.



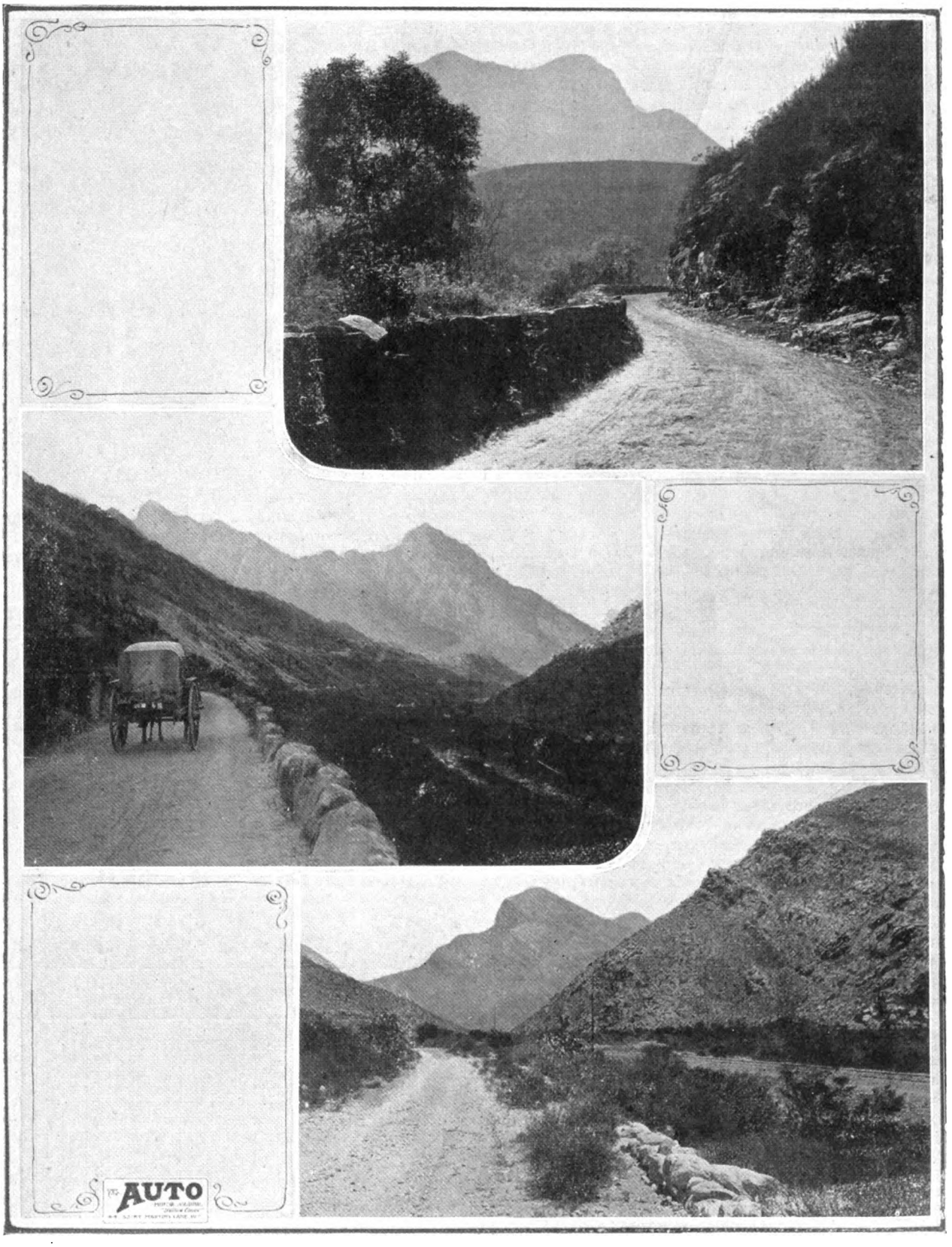
MOTORING IN SOUTH AFRICA.—Mr. H. Gill on his 10-h.p. Austin car, which was winner of the Speed Trial on formula, referred to by our South African correspondent.

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Automobile Golfing Society.

EIGHTEEN members took part in the competitions on Saturday last at the Cooden links. In the morning competition for the best 18 holes under handicap, J. Maughfling (18) and J. Woodall (3) tied at 90 net, while in the afternoon foursomes medal competition the winners were J. Maughfling and F. B. Liversidge at 105 less 17 = 88. In the evening a dinner was held at the Sackville Hotel, at which Mr. Charles Jarrott presided. Among those present were Earl de la Warr, Messrs. C. L. Freeston, Warwick Wright and Percy Richardson. Lord de la Warr expressed his pleasure at seeing the members, and hoped they would arrange another meeting in January, when he would provide the prizes.

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TOURING IN AFRICA.—"Blazing the Track." Scenes by the way. (See our South African correspondent's letter.)

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THE R.A.C. HORSE-POWER TESTS.

WITH considerable interest we have been studying the Official Report on the Brake Horse-Power Tests conducted at Brooklands on July 19th, 1912, under the auspices of the R.A.C. and by the aid of a Wimperis accelerometer. This most useful instrument affords, when attached to a car, a direct measurement of the resistance to motion, and it serves, therefore, as a rapid means of arriving at the horse-power actually demonstrated.

The idea of conducting a scientific test of this description was happily conceived, but it appears to have been carried out without very much attention to the incidental information that makes all the difference between really useful and merely interesting figures. Nevertheless, although it is hardly worth while reproducing the Official Report *in extenso*, there should be some gain from summarising it, which we have endeavoured to do to the best of our ability by the preparation of a table containing a certain amount of information that is not directly given in the report itself. Thus, we have taken ten modern cars, for which the data appears to be complete, and have worked out the piston displacement per ton mile, which is given in litres under the column headed x. We have always advocated this calculation in respect to cars that are under review from a competitive point of view, because we consider it to be a simple and reasonable way of summarising the design of the car as a whole. It is interesting to know what power an engine develops on the bench, but it does not necessarily tell one very much about its ability in a particular vehicle, where the limitations of gear ratio and weight may reduce its potentially harmonious working to a state of discord.

Let us, therefore, pay attention to the column x, and note how one car attempts to accomplish with less than 3,500 litres per ton mile, what another vehicle apparently needs over 5,600 litres per ton mile to do. At once, the question arises, which car is making the best performance, and the answer is obviously to be derived from a study of the column headed x/h.p., which gives the ratio of the litres per ton mile to the power that the engine actually demonstrated. Thus, let us compare the 90 mm. cars, of which there are three having four-cylinder engines. No. 6 derives one effective horse-power from 152 litres per ton mile in respect to cylinder capacity. No. 20 is a slight improvement, the corresponding value being 149 litres. Now, No. 20 is evidently a much lower geared car than No. 6, but the engine appears to be equally effective over a fairly wide range, in other words it looks as if 90 by 130 bore and stroke represents a thoroughly useful engine to have on a car. For some reason or other, No. 14, which has practically the same dimensions, appears to be labouring under a disadvantage. It would be very interesting to know why, but no reason is apparent from the figures in the table. It is developing exactly as much horse-power as No. 6, but it requires more cylinder capacity per mile in proportion to its weight than the other car, and also it makes a slightly lower speed. It is particularly to be observed, of course, that No. 20 develops considerably more power than No. 6, but this is not in itself of so much importance, as that, taken in conjunction with No. 6, it indicates a most useful range on the part of the engine in question. As the names of the cars are not given we do not know more about these two motors than that their dimensions are identical.

If, now, we pass to another type of car, that with the popular small four-cylinder engine of 75 mm. bore, we find a couple of examples in Nos. 10 and 21. The latter has rather a high value of x, but it is not out of the way. When, however, it comes to comparing x with the actual power demonstrated, it is to be noticed that both cars require considerably more cylinder capacity per ton mile for the horse-power developed than any other vehicle in the list.

From the very slight evidence thus provided, it looks as if these very small engines are not very efficient on a cylinder capacity basis, and this idea receives support when a vehicle like No. 16 is taken into account, for that is a car having a four-inch engine with a very long stroke, and although it, too, has quite a high value of x, it makes far better use of its litres in developing horse-power than does the smaller type. Another big engine on No. 12 does not do as well as No. 11, but it obtains a fair average value when compared with the 90 mm. class.

A feature of the test was the inclusion of various old cars, and the Official Report contains an analysis of the relative performances classified by age, which we have tabulated herewith. Thus, modern vehicles are on the average 50 per cent. more powerful than their rating under the R.A.C. formula. Those built during 1909 and 1910 are *now* about 20 per cent. more powerful than their rating, while those built during 1907 and 1908 are now about 20 per cent. less powerful. Cars built during 1903–1906, it appears, now only develop about half their rated power.

Engine revolutions, piston speeds, mean effective pressures, and the ratio of stroke to bore, have all increased of late years, as is shown in the table, and as has otherwise been well known for a long time even to the casual reader of the motoring press. The report further states that there is no apparent relationship between the stroke-bore ratio and the power developed by the engine.

Actual h.p. : R.A.C. rating.

Cars built in
1911–12 are 1·47
1909–10 ,, 1·21
1907–8 ,, 0·76
1903–6 ,, 0·55
} times their rating

Mean values.

	r.p.m.	ft./min.	m.e.p.	L/D.
1911–12	1689	1429	66	1·47
1908–10	1615	1358	50·2	1·35
1903–7	972	817	54·0	1·31

r.p.m. = engine revs. ft./min. = piston speed.
m.e.p. = mean effective pressure on piston lbs./sq. in.
L/D = ratio of stroke to bore.

Results for Cars Built during 1911–12.

No.	r.p.m.	Litres.	Tons m.p.h.	x.	h.p.	x/h.p.	Bore and Stroke.	R.A.C.	h.p./R.A.C.
3	1950	2·35	1·36	42·5	4750	24	200	79 × 121	15·5	1·55
5	1870	1·53	1·3	38·1	3450	20	173	90 × 120	10·0	2·00
6	1430	3·31	1·88	40·7	3710	21½	152	90 × 130	20·1	1·22
10	1790	1·94	1·08	37·2	5180	18½	280	75 × 110	13·9	1·32
12	1540	4·25	1·67	44·8	5250	33	159	102 × 130	25·8	1·28
14	1020	3·17	1·62	39·0	4870	24½	200	89 × 127	16·7	1·46
15	1290	4·08	1·91	39·5	4220	22	192	100 × 130	24·8	0·89
16	1560	5·82	1·98	49·7	5530	43½	127	102 × 178	25·8	1·68
20	1860	3·31	1·67	44·8	4980	33½	149	90 × 130	20·1	1·67
21	1980	2·30	1·21	40·0	5650	18	314	75 × 130	13·9	1·29

x = litres per ton mile = some expression of the h.p. that should be available.

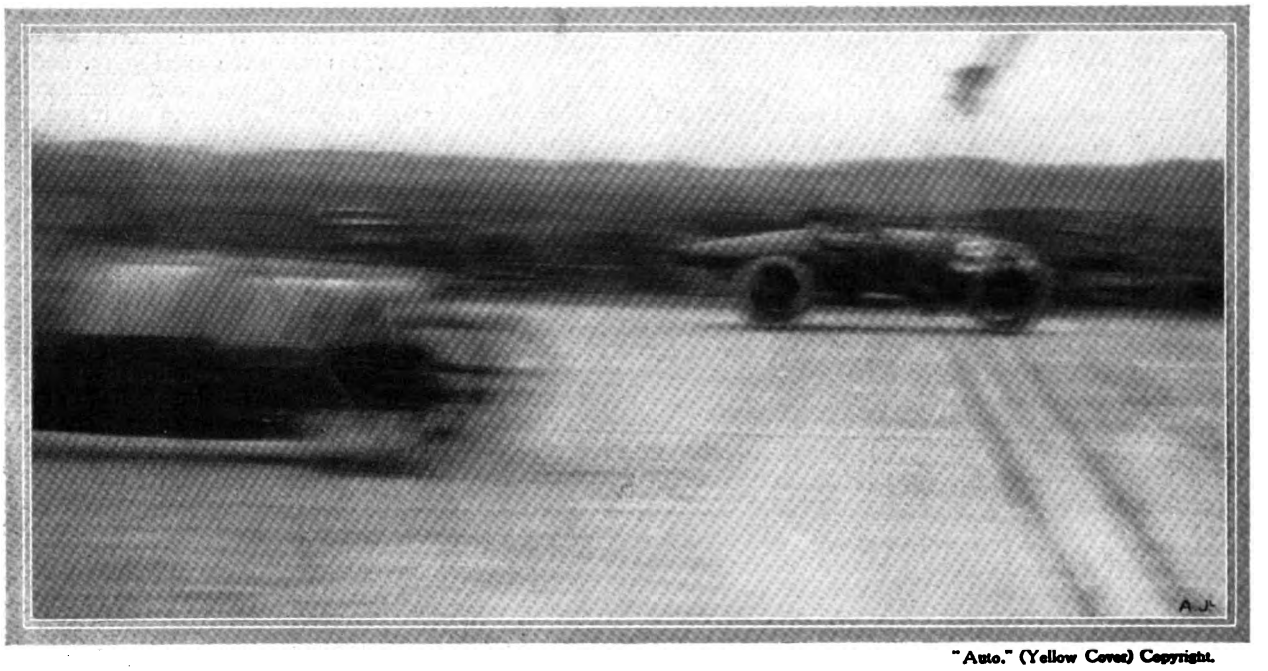
h.p. = h.p. actually demonstrated.

No. 5 was a twin-cylinder car with a mean effective pressure of 91 lbs. per sq. in.; all the others had 4-cylinder engines ranging from 51 to 71 lbs. per sq. in. mean effective pressure.

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"LET THE JUDGES DECIDE"—AND "AUTO." PHOTOS.

IT will be remembered that at the last Brooklands meeting the finish of the last race of the day—the sprint race—was so exceedingly close that, although of course the decision of the judge had to be accepted, there were many present who disagreed with the ruling, and affirmed that car No. 10 crossed the line first, and not No. 9 as verdict. Needless to say, we do not reproduce this photograph for any artistic merit it may have, for it is obviously one that would not have seen the light of day in our columns save for the purpose for which it is now reproduced. It was taken at five o'clock on an autumn evening, when failing light and the great speed of the



"Auto." (Yellow Cover) Copyright.

A remarkable photographic record taken by the AUTO. photographer which confirms the decision of the judge in the Brooklands Race Meeting on September 28th in connection with the Sprint Race, in which four competitors were supposed to have crossed the line apparently together. Almost without exception the pressmen doubted the decision of the judge in awarding the race to No. 9, it being claimed that at least No. 10 was the actual winner. The AUTO. photographic evidence above, however, fully justifies the ruling of the judge.

was officially held. So strong was this view that the judge has been made the butt of a good deal of criticism —much of it couched in somewhat laboured terms of sarcasm—which has fairly gone the rounds of the lay and trade press. For that we do not suppose the authorities care a single iota; but it so happens that we are able to set the question of who did win the race completely at rest. If a reference is made to the snapshot photograph of the finish, which we publish on this page, it will be seen that, at the moment of crossing the line, No. 9 was actually leading No. 10 by a full length, and the photograph, therefore, is an absolute vindication of the judge's



The Trackless Trolley.

MUCH excitement has been caused at West Ham by the Corporation's experiments with a trackless trolley vehicle, designed to take power from the overhead electric wires, but capable of running on the road without using the tramway tracks.

Had no such vehicle as the motor car yet been invented, we could imagine the prophets of the day looking at the West Ham innovation and speaking somewhat in this wise:—

"A great and far reaching development has taken place in passenger road transport by the introduction of a vehicle that does not need rails. At the present time, it is still restricted to the use of overhead wires for the cars entirely precluded photographic success, even at the hands of "Prof. Lightning," the clever staff operator of the AUTO.

As a matter of fact, it was only taken as an experiment, and that it should now prove useful in the settling of a controversy is a little accidental. However, it will have achieved its purpose if it should lead the amateur critics of the Brooklands judge to make sure of their facts before, on some future occasion, they indulge in sarcasm at the expense of officials who at least have the merit of knowing their business, backed by solid experience.

supply of power, but no actively minded person, observing the relative manœuvreability of these excellent machines, can possibly fail to foresee in the future, the day when overhead wires, as well as rails, shall be done away with, and a vehicle, self-contained with its own power unit, shall come amongst us for our public service—to wit, what we might term a motor car, indeed a veritable automobile."

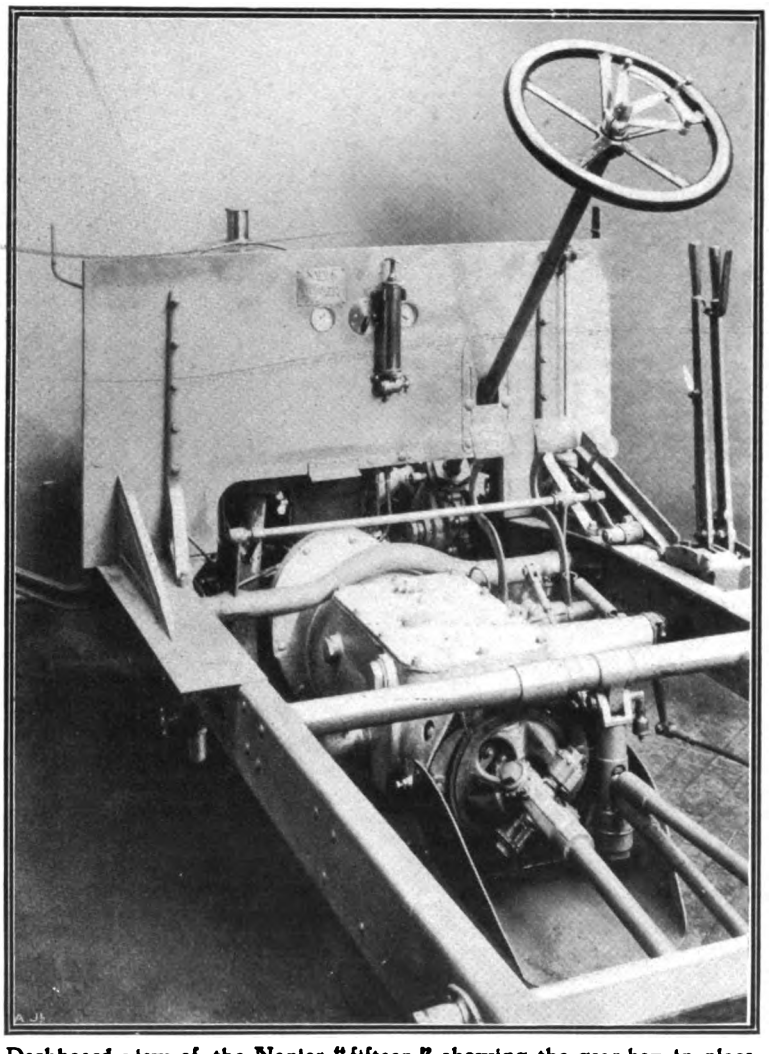
Well, we always like to see progress, and we congratulate the West Ham Corporation for, at any rate, making a move in the right direction. If the motor 'bus has not yet been noticed by the members of the Council, there will be all the more credit to them for evolving out of their own minds a really mobile vehicle, towards which end they have, at least, made an initial stride.

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THE NAPIER "FIFTEEN" FOR 1913.

IN our issue of September 28th we published particulars of one of the 6-cyl. Napier cars for 1913, and this week Messrs. S. F. Edge have, with the systematic enterprise that characterises their methods, sent us illustrations and notes about next year's "fifteen."

Without doubt, the 15-h.p. Napier is one of the most popular of the really high-class moderate-powered cars that have ever been produced, and it will be something very extraordinary in the way of evolution that succeeds in removing it from the list of standard Napier cars. Each year this machine becomes more and more refined, and each year, too, the number of those who use it is extended, and particularly so in the ranks of those whose requirements are not to be satisfied by anything that in the least savours of a makeshift job. The 15-h.p. Napier has, in fact, made its name because it is a first-class car, not because it is a cheap car, nor because it is a condensed form of big car, but just because it is a really carefully thought-out design that is intended to meet the serious requirements of the day. As a town car, it makes an ideally convenient vehicle, and as a touring car it is as much as the moderate man requires.



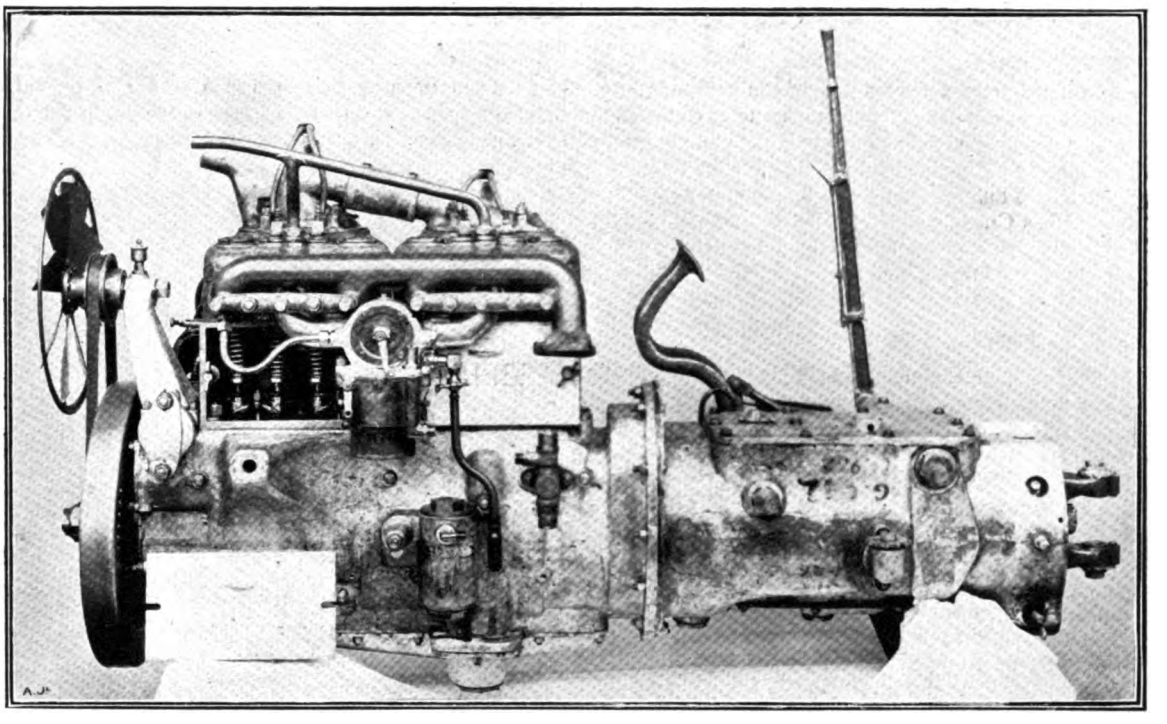
Dashboard view of the Napier "fifteen," showing the gear-box in place. Note the detachable extension forming a shield under the universal-joint.

These machines are still made in four standardised types, two of them with a wheelbase of 8 ft. 10 ins. and two of them with a wheelbase that is 12 ins. longer. One model of each length is a special Colonial type, containing many small details that the firm has found desirable to be incorporated in the cars sent out to the Colonies. These details are not mere ideas, but the outcome of a unique experience, which includes the results of an extended tour in South Africa by Mr. S. F. Edge himself, who went over there personally in order to gain first-hand information as to the prevailing conditions.

On the long wheelbase chassis for use in England, the final drive can be either bevel or worm, as the purchaser chooses, but for the other types bevel drive alone is fitted. Rudge-Whitworth detachable wire wheels are standard on all models, and a spare wheel is included in the price charged for the long wheelbase cars. In these machines also, a four-speed gear-box can be fitted if required, at an additional cost of £15, which we consider to be a most important matter, as it gives the purchaser who desires to use his car mostly for touring, the opportunity of satisfying a very natural inclination to possess a four-speed vehicle. If the fourth speed is worth anything at all, it is worth the extra £15, and we say this because a fourth speed is not worth much to the driver who does not understand how to use it properly. To anyone familiar with the real purpose of four speeds, and practised in the art of making the most of them, the four-speed gear-box is, in our opinion, an advantage for cross-country work over give-and-take roads. But for the driver whose main idea is to get into "top" and stay there, the three-speed box should be the better of the two, because, presumably, the top speed on such a model will have been specially designed to provide the maximum amount of top-gear work. Moreover, the driver who persists in using the top speed all the time is invariably late in changing down to a lower gear on a steep hill and, consequently, he would need to go at once into the second speed even if he had a four-speed gear-box. The art of using a four-speed box properly is to change early, in other words the four-speed box is essentially for the driver who does not object to gear-changing, and to whom, as we have already remarked, the extra speed will be well worth the money that is asked for it.

For the rest, it remains only to remind waverers that the three-speed car has in Kent climbed Cudham, Titsey and Westerham Hills five times a day for six days on a petrol consumption of 22·38 miles to the gallon for 576 miles. In Yorkshire it has covered two circuits including Greenhow Hill and Sutton Bank, when the roads were exceedingly heavy, 27 times at a consumption of 18·97 miles to the gallon for 217 miles. In the

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The power unit of the Napier "fifteen," which comprises the 4-cyl. engine, with its fly-wheel in front and gear-box containing the multiple-disc clutch. Those who desire to do so can have four speeds on the 1913 cars.

Wicklow Mountains a circular course of 46·7 miles over very steep gradients on a route which in many places was comprised of loose sand, was covered ten times, and notwithstanding this the petrol consumption was only 19·19 miles to the gallon. In each case a standard car was used, and accomplished the tests without involuntary stops.

The following notes on the technical details give the main dimensions and a brief description of the principal parts. The cylinder bore is 82 mm. (3¼ ins.), stroke is 127 mm. (5 ins.), H.P. 16·9 by the Treasury rating. Wheelbase is 9 ft. 10 ins., track 4 ft. 8 ins., tyres are 815 by 105 mm., and the space available for body is 7 ft. 7½ ins. long and 2 ft. 11 ins. wide, giving ample space for roomy landaulet and cabriolet bodies. For torpedo bodies, the steering-column can be raked down very low; the column is adjustable, and can be fixed at any desired slope. The angle of the brake and gear change-levers is also adjustable to suit the position of the column to bring them within correct reach of the driver.

The foot-brake is greatly improved for 1913. It consists of a wide steel-flanged drum of large diameter attached to the main-shaft of the gear-box, and carrying two projections that form one of the forks of the universal-joint. The brake-shoes are now pivoted at their centres to suspension levers exactly the same as in railway practise, and when applied act without jar or sound. Adjustment of the shoes after wear is made by turning a little thumb-screw outside the casing by which the brake is protected. A dust-shield is fitted to afford protection to the brake and universal-joint.

As usual in this car, the power unit comprises a 4-cylinder engine with the fly-wheel in front and the metal disc clutch in the gear-box. The engine is fitted with a two-jet carburettor, one jet only being in action up to 20 miles an hour, an engine-driven pump maintains the pressure in the petrol tank and a rotary enclosed pump supplies oil under pressure to all the crank-shaft bearings. Thermo syphon circulation of the cooling waters is assisted by a belt-driven fan behind the radiator, and in every possible way the detail workmanship in connection with lubrication and adjustment, and especially cleaning of the car, has been carried to the highest point of refinement without unnecessary complication.



I.A.E. Graduates.

MR. CAMPBELL TAYLOR'S opening lecture on "Works Organisation" at the opening meeting of the Session of the London Graduates of the Institution of Automobile Engineers was read on Thursday week at Caxton Hall, and provoked a most animated discussion. Many of the speakers quoted points from their actual experience bearing on the subject of the paper, and altogether the proposed scheme of a series of papers dealing with the production of a batch of cars from the raw material to the selling of it, promises to be a great success and productive of much useful information not ordinarily obtainable.

The Proposed New Western Road.

AN amendment to the scheme for the proposed Western Approach Road to London has been put forward by the Heston and Isleworth Councils suggesting that the new road should be diverted to the south so as to bring it to a junction with the existing main road at Spring Road and then continue it to the north-west to resume the course originally intended. This suggestion has been approved by the Road Board, and the Council have been recommended to petition the Middlesex Council to promote a Bill in Parliament for the construction of so much of the proposed road as lies between Kew Bridge and its original termination near Cranford.

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DYNAMO LIGHTING SETS.—V.

THE "EN ROUTE."

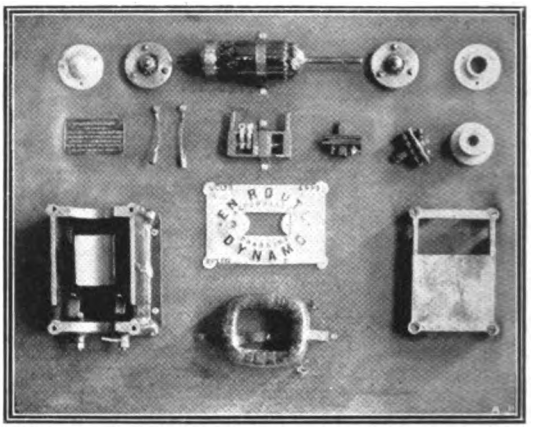
THERE are plenty of small cars on which the use of powerful head lamps is the exception rather than the rule, and an electric lighting set designed to supply sufficient current for two side lamps and a tail lamp is sure to find a ready market. This, at any rate, is the opinion of the Motor Accessories Co., of 55, Great Marlborough Street, W., who in the "En Route" system provide just such a set. As a matter of fact it is rather stretching the point to call it a *set*, because the only component besides the batteries is the little dynamo weighing about twelve pounds complete with a self-contained magnetic cut-out.

A single wound field magnet is used, it is situated at the base of and attached to the malleable iron casing. The casing of the dynamo is sealed up by the makers before being sent out, but, as shown in the illustrations, the lid or cover may be swung on a pivot, thus exposing the brushes and commutator segments. The former can be removed without disturbing any other part of the mechanism.

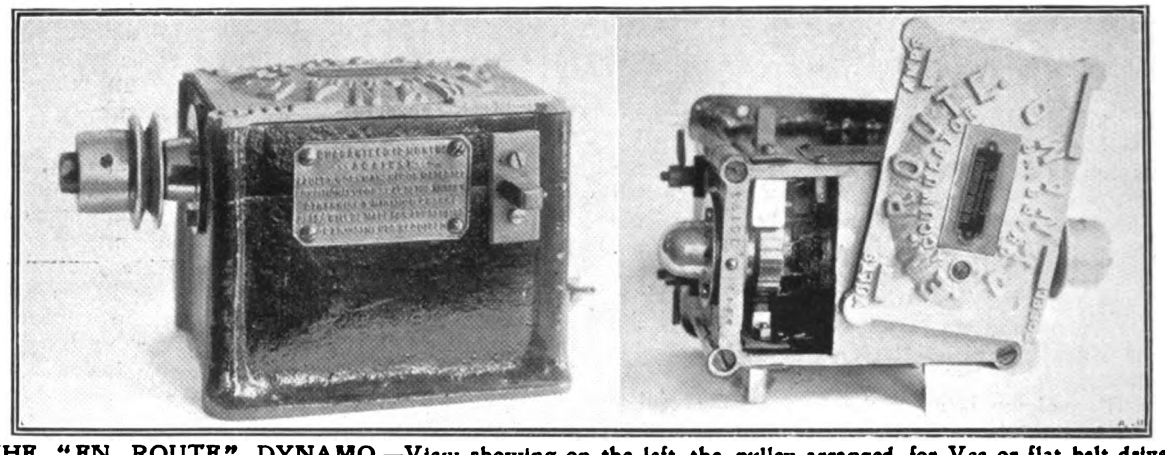
No special arrangement for controlling the output of the machine is used, for the makers claim that there are two factors present rendering such a device unnecessary. The first is that the amount of current given at any speed can never be great enough to do any damage to the plates of the accumulator—the second point is that at high speeds the driving belt tends to slip.

A simple form of magnetic cut-out is fitted, having rubbing contacts, which is arranged to close the battery circuit at about 1,800 r.p.m. in the 25-watt size. No current is generated and no damage is done should the drive be reversed.

A suitable place for the dynamo is on the footboard, where it may conveniently be driven by a spring connection or a leather belt. A spring is provided to draw the machine outwards in order to keep the driving belt in tension. There being no switchboard, the usual volt-meter and ammeter are dispensed with, and instead of the usual collection of switches push-in plugs are used for each circuit. Two sizes of "En Route" dynamo are made, the smaller, or 25-watt size, in two models giving respectively 5 and 10 volts and the larger or 60-watt size in three models giving respectively 15, 20 and 25 volts. There is a standard price for each size irrespective of which model, that of the smaller being £6 10*s*., that of the larger being £8 10*s*.



Some of the component parts of the "En Route" dynamo dissembled.



THE "EN ROUTE" DYNAMO.—View showing on the left the pulley arranged for Vee or flat belt drive. On the right the dynamo from above, showing cover swung round, exposing commutator and brush gear.

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The Taxing of Old Cars.

AT the last meeting of the Committee of the Royal Automobile Club it was decided to ask the Technical Committee to carefully consider the matter of a suggested reduction of the tax on old cars with a view to the Club bringing the matter to the notice of the Treasury. The Technical Committee is to submit a report as soon as possible "after consultation with representatives of the Society of Motor Manufacturers and Traders, which body is naturally interested in the reduction of the tax on old cars." It was suggested that motor cycles might also be included in any recommendations.

Cab Rank Telephones.

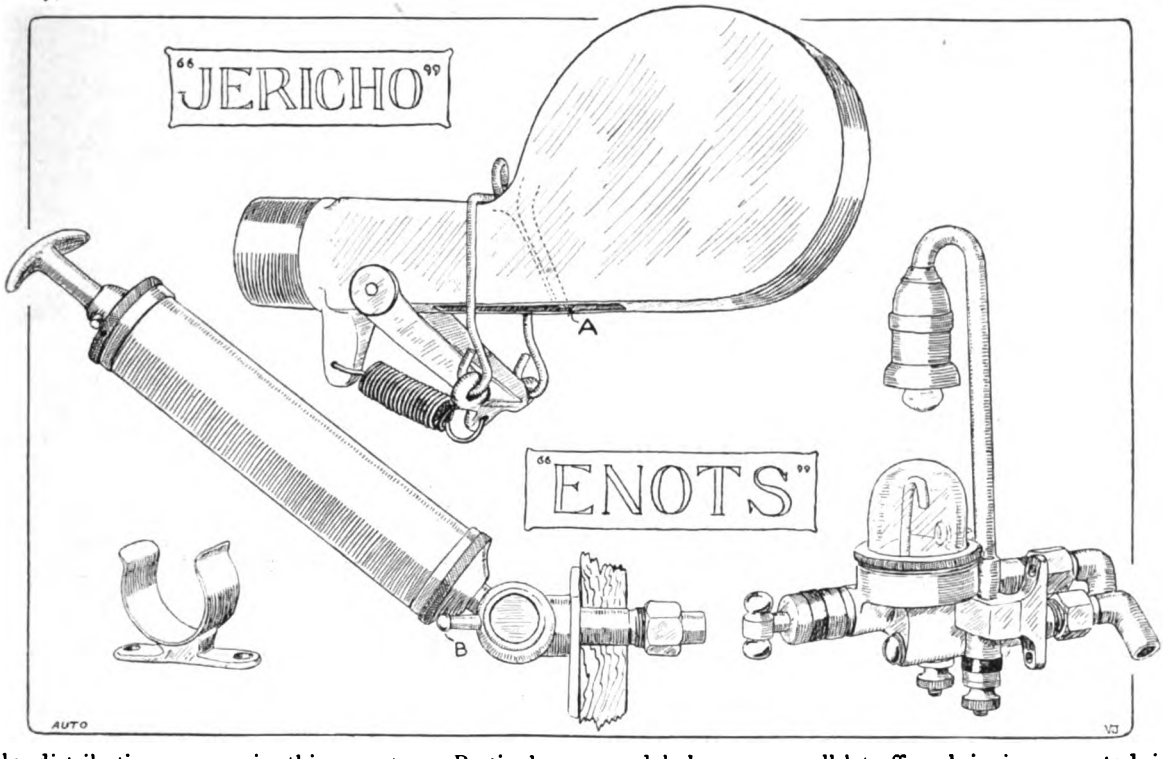
FOLLOWING on the experience obtained with the open-air telephones arranged in connection with cab ranks, an announcement is made by the Commercial Motor Users Association that they are prepared to carry out the necessary arrangements for the erection of cab rank telephones in suitable localities, if sufficient subscriptions are received from those of the public interested.

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ACCESSORIES OF THE WEEK.

APART from considerations of merit, the price of thirty shillings complete at which the "Jericho" horn is sold, would probably be enough to tempt quite a number of motorists to invest in one as a speculation. And we believe that not one would be dissatisfied with his bargain. Good workmanship and clever design are as noticeable in the actual horn, as the paper price is remarkable. Aluminium is used for the whole whistle and its mechanism, the latter being very simple, while the fitting, as we know from experience, is extraordinarily easy. A large selection of couplings suitable for all types of exhaust pipes is kept ready in stock by Messrs. Smith and Dorey, of Great Marlborough Street, W., who hold the sole distributing agency in this country. Particular instructions, which it is worth while to follow, are given by the makers as to the fitting and placing of the horn. It must, if used in the usual place at the back of the car, be fitted with the mouth downwards, as otherwise most of the sound is cut off from passing forward by the body-work. Incidentally, if properly fitted, very little of the warning is wasted on the occupants of the car, which is perhaps as it should be. It is practically impossible for the whistle aperture to get clogged, and should oil and soot get blown into the hollow sounding chamber, they just jolt out again through the hole in the bottom. Pains are taken to suit the slit or opening marked A in the sketch to the volume of gas likely to pass through it, instead of just gauging it roughly by the diameter of the exhaust pipe. Horse-power, bore and stroke are taken into account, so that in each case the best possible results may be obtained.

SOME time ago we illustrated for the Rotax Co., a dashboard petrol pressure pump, made by Messrs. Benton and Stone, of Birmingham. That particular pump had just one disadvantage, the pressure could not be let off unless a separate tap were provided somewhere in the system. The consequence was that there was a good chance of the petrol in the tank bubbling up and over the edge when the cap was removed. In the new model shown, a small let-off cock is incorporated in the hinge at B, so that the pressure may be released when desired.



BENTON AND STONE'S sight feed lubricator has long been notable in its utility, general cleanliness, and good construction. For the benefit of those provided with electricity for lighting, this firm have now brought out a similar lubricator in all respects, except for the provision of a small bulb above the cover glass. This lamp will be found, of course, equally handy for reading watches or speedometers. Mr. G. H. Smith, of Great Marlborough Street, W., is the sole London distributor of all "Enots" goods, in which these are included.

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Reading Centre Standards Going.

OWING to the strong agitation which has been worked up regarding the obstruction caused by the central tramway standards in Reading, a number of them have already been taken down, and it is expected that the work will be completed in about a couple of months, with the result that the streets of the biscuit city will be widened by one-third. What an example to follow!

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Durban Wants Motor Ambulance.

THE Durban Town Council is evidently progressive in its ideas. It is seeking to obtain a two-bed motor ambulance for dealing with infectious cases, and the cost is limited to £450. Firms wishing to obtain further particulars should communicate with the agents, Messrs. Webster, Steele and Co., 5, East India Avenue, London, E.C.

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A NEW SPARE WHEEL COVER.

THE Stepney Spare Motor Wheel, Ltd., of 168, Great Portland Street, W., have just placed on the market a very handy and neat cover for their well-known Stepney wheels. The cover, which is shown in the illustration that accompanies these notes, is made of canvas impregnated with a material that renders it waterproof and at the same time gives it the appearance of patent leather. It has the advantage that it can be used for either a spare tyre only, or a complete tyre mounted on a Stepney wheel or on a detachable rim, as well as for a complete spare wheel. Its mode of attachment is simplicity itself; the edge of the cover is provided with an elastic band inside the seam, which holds the device firmly in place. No leather straps or press buttons are needed, and it is fixed in the easiest manner by simply slipping it over the tyre. Detaching the cover, as shown in the picture, is equally simple; all that is necessary for this purpose is to hold the tyre with one hand and pull the cover off with the other. When in position on the car it presents a smooth surface, which is easily cleaned by wiping it over with a wet sponge and drying it with a chamois leather. A special model fitted with a cap in the centre is available for wire-wheels where the hub projects beyond the plane of the rim. When not in use it can be folded up into a very small space, and does not take up much room in the spare box. Its price compares favourably with similar devices of this kind.



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C.A.V. LIGHTING OUTFITS AT HENDON.

ALTHOUGH we do not as a rule record events in the world of aviation in this journal, but leave them to be dealt with by our more expert colleagues in our contemporary *Flight*, we think that we should not withhold from our readers a few remarks on the success of the C.A.V. lighting outfits, the same as supplied for the use on motor vehicles, by Messrs. C. A. Vandervell, of Warple Way, Acton, at the recent demonstration of night flying at the Hendon Aerodrome.

All the machines that took part in the demonstration, viz., four biplanes and two monoplanes, had been equipped by Messrs. Vandervell with one of their search lights, of the same pattern as those used as head-lights on motor cars, and a large number of small high efficiency lamps, which were fitted to the leading edge of the wings. Regulation port and starboard lights were also carried by every machine. During the flights the pilots used their head lamps for signalling by giving long and short flashes with them after the Morse code. They also produced very pretty effects by repeatedly switching on and off either all or some of their little lamps, which marked the outline of the planes against the evening sky.

Originally it had been intended to fit to each machine a generating dynamo driven by the engine, but various unforeseen difficulties prevented this course being taken. Accumulators therefore were substituted for the dynamos, but it is hoped to overcome the difficulties, and generating plants will be seen on the flying machines on some other occasion in the near future.

Throughout the evening the illumination of the aeroplanes was perfect, and the fact that impressed the writer most favourably was that two of the pilots were able to execute perfect landings solely by the light of the single headlamp they carried on their machine. In addition to the lamps used on the aeroplanes, a number of C.A.V. searchlights had been placed on the railings of the enclosures, and were successfully used for lighting up the ground in order to facilitate the landing of the various machines.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Petrol.—Will those members who have not yet replied to the communication relating to cheaper petrol, kindly do so at their early convenience? Members who have not received the circular owing to their having recently changed their addresses should communicate with the secretary, when a copy will be sent to them.

Special Road Warning.—A large number of complaints have been received by the Association regarding the state of the Watling Street road from Crick (at the junction where it joins the Rugby-Northampton road), for some seven or eight miles in the direction of Atherstone. According to reports received the whole of this portion of road, for about four miles, has been recently covered with loose round metal without being rolled in, and for the rest of the distance there are big patches of sharp road metal, also unrolled. The Association is in communication with the local authorities upon the matter; in the meantime members are advised, for the sake of their tyres, to drive carefully over this road.

Touring.—Insurance of Cars in Switzerland.—It has been reported that the authorities have passed a decree insisting upon foreign motorists taking out insurance policies. This report, however, is premature. The Bill has not yet been passed by the Legislative Council and it is not anticipated that its provisions with regard to the insurance of cars will affect tourists who hold permits from their own authorities.

Speed-Limit Applications. — Iver (Bucks) and Datchet (Bucks).—The County Council of Buckingham have applied to the Local Government Board for ten-mile speed-limit Orders for certain roads in Iver; also Datchet (in Buckinghamshire). Objections must be lodged on or before October 21st. Will members who are able to furnish useful information bearing upon these two applications kindly communicate their views as early as possible to the secretary?

Level Crossing Dangers.—The Association has taken up the complaint of a member regarding the illumination of the Reigate level crossing. The gates are not at right angles to the road, and therefore on a dark night motorists are unable to see the gates until they are right on them. The railway authorities, in reply to a communication by the Association, have promised to give the matter early attention.

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CORRESPONDENCE.

Tight Pistons.

SIR,—I recently had trouble with the engine of my car, which I had delivered two or three weeks back. I then had occasion not to use it for ten days. When I came to use it again I found the engine seized solid, and could not be turned round. It subsequently transpired that the pistons had seized in the cylinders.

There was no suggestion of under oiling or anything of that sort, but the makers write to me and say that an engine which has stood for ten days or more should not be started up without putting lubricating oil through the compression-tap. They say the reason is that in their engines they fit their pistons very tight, so as to make them quiet.

Would you please tell me if you think this is a reasonable explanation—that the modern up-to-date motor cars cannot be started (after standing for more than a fortnight without being used) without first oiling them through the compression-tap?

The idea was so novel to me that I thought I would write and hear your opinion.

Streatham Hill. F. H. J.

[The above letter omits one important piece of information, which is the manner in which the engine was run immediately after re-starting. An engine that is new always requires some careful running-in and plenty of lubrication, and one would naturally pay particular attention to the latter if one found that the pistons were tight when cranking. The engine should certainly be capable of being re-started after a fortnight, but having regard to the above remarks one would take care to run it gently whilst warming up, in order to give the oil a chance to get thoroughly circulated. Much depends also on the lubrication *system*. Pistons that are so tight as to need the injection of lubricant through the compression-cock might, we should think with advantage, be fitted with forced lubrication through the gudgeon-pins or through the cylinder walls. Using tight pistons certainly promotes silence, but it also stands to reason that the manufacturers should take special precautions against the risk of seizing if the clearances are reduced below those that have hitherto been found necessary.—ED.]

Spare Wheels.

SIR,—It is pretty obvious that your correspondent's surmise in last week's issue is correct when he concludes that the moral of the story was to carry a spare tyre, but although I envy *his* immunity from tyre trouble, I am afraid I should have cause to regret the application of his argument to *myself*, for my luck does not seem to run in the same smooth way. I do not wear a fireman's helmet in Piccadilly as a safeguard against a falling chimney pot, but I do carry an umbrella as a precaution against rain, and if the umbrella were as little trouble to carry always as is a spare wheel on a motor car, I should less often be caught in a shower. By selecting only fine days for walking abroad, doubtless I could do very well without it altogether; similarly, by using nothing but good tyres, well up to the weight imposed on them, I could reduce my liability to tyre trouble. But I cannot keep my tyres *always* in the pink of condition because I cannot afford to scrap an old cover from the moment that it attains such a state as to make a burst a far less remote possibility than is the likelihood of my being struck on the head in Piccadilly by a falling chimney pot. I am, in fact, very certain that when I discard a tyre it is really worn out, and in the practise of this economy—wherein I imagine I am not altogether alone—I have been immensely encouraged by the facility with which one can fit a spare wheel. First it was the Stepney, when I had my old car, and now it happens to be a Rudge-Whitworth detachable wire wheel on my present machine. And to-day I can snap my fingers at tyre trouble, because I consider that I have reduced its unpleasant consequences to such very reasonable limits.

Kensington. "DETACHABLE."

Rudge-Whitworth Patents.

SIR,—We beg to inform you that Mr. J. S. Napier has given formal notice of discontinuance of the action for infringement of his patent No. 1,248 of 1906 which he brought against us.

We are proceeding with our counterclaim for revocation of the patent, and also taking active steps for the revocation of the equivalent foreign patents.

For RUDGE-WHITWORTH, LTD.,

Rudge Works, Coventry. JOHN V. PUGH.

Cars That Pass By.

SIR,—Incredible as it will appear to you, I think you should be made aware of the following circumstances:—

On the 3rd inst., about 4.30 p.m., ascending Egham Hill on a new type of car of small power, we had occasion to pass a traction engine with three trailers, and observing a car approaching in the opposite direction we slowed to about 10 m.p.h., although there was ample room for the two cars to pass. The driver of the approaching car, which was travelling at about 30 m.p.h. when abreast of us, rose from his seat and deliberately struck my driver on the temple. The astonishment of us both prevented us from observing the number of the car, which cleared off towards London, and although we took up the chase we were unable to overtake this "gentleman."

It is easy to imagine the consequences had my driver swerved into the traction train at the time of the blow.

I do not expect this letter to produce any reply from the offending driver, but his passenger may have sufficient sense of justice to acquaint me with the number of the car. The remainder would then be easy, and satisfaction of one kind or another obtainable.

Small wonder that motorists are in bad odour when persons of this character are permitted a monopoly of a part of the road.

Thanking you for your courtesy in the matter.

Bishopsgate, E.C. A. G. MCKECHNIE.

"A Simple Story and Its Moral."

SIR,—Surely your correspondent, "B," is singularly dense or else he is a person with an all-pervading confidence in his luck. If he is really driven to merely surmise the moral of the story which has impelled him to write the letter published in your issue of last week, then his perception is certainly not of the most acute. If, on the other hand, he is genuinely astonished that anyone should dream of carrying a spare tyre and his own experience is as he says—and, of course, I accept it without reserve—then all I can say is that his luck is too good to last. Personally I am one of those slack individuals who keep no account of their mileage, so I cannot say to within a handful of hundreds how many miles I have covered during the eighteen months that have passed since my last bout of tyre trouble, but the total is certainly not less than seven thousand, probably more. According to "B," then, all I need is a spare tube and a set of levers, and, as a matter of fact, I have not even needed that. But I remember what the man in the woolly West said when he was asked if he often needed the big six-shooter he carried. "No," said he, "I don't often need it, but when I do I need it d——d badly." So with the Stepney or the spare cover. When they are wanted, they are wanted very badly, and I would as soon set out on the car without at least one spare cover as I would with an empty petrol tank. And so, I imagine, would any other prudent motorist.

Watford, Herts. PRUDENTIA.

The Unofficial Tyre Trial.

SIR,—I have seen a lot of correspondence over the Victor tyre trial, but I have yet to see a letter whose writer grasps the real point. A comparative test of *one* tyre of several makes is no comparison of the quality of those makes.

Every motorist knows by experience that successive tyres of the same make vary, and that to get any sound basis of comparison an average of a large number of tyres would have to be taken. So that it is quite impossible to say that one *make* is better than another merely because one specimen tyre happened to put up a longer mileage.

There is another point that I should like cleared up. As far as I know there were at the beginning of this trial no regular stockists of this Victor tyre, in the same sense that there are stockists of the other makes. Consequently, when an order came through for one of the tyres for one of the eminent gentlemen who purchased them for the trial,

(*a*) A cover fresh from the manufacturer's stock would be, presumably, sent in the case of Victor, whereas the others may have been in stock for some months; this, of course, very much in Victor's favour.

(*b*) It seems probable that if an order came through from, say, a Southampton agent for a cover for Sir T. Lipton, the manufacturers would know that this would be a cover for the trial.

I have also seen it stated that the tyre is British, and should like the vendors to say definitely if this is so. I have also heard that the tyre is made in Belgium, not far from the Englebert factory.

Personally, I have not a pennyworth of interest in any tyre made, but as a mere motorist who is willing to profit by the results of a proper trial, I object to being surfeited with these sort of advertising trials, which I am glad to see that you at all events do not countenance.

Albert Gate. WILLIAM GEORGE.

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Notes from New York

It will be remembered that at the midsummer meeting of the Society of Automobile Engineers in Detroit, the Secretary, Mr. Coker F. Clarkson, was presented with a model motor car and told that the "real thing" would be coming along later, as a token of the good service he had rendered the Society in building up the membership and organising the work so as to be of real value to the industry. The committee in charge decided on a 1913 model Hudson touring car, which has now been handed over to the happy owner.

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An inventor of New Jersey is going to try and get the New York Legislature to take notice of a little invention of his which he thinks should be fitted to every motor car. His idea is to have a pair of brackets attached to the front springs and carrying a thin copper wire across the front of the car. On this would be arranged little buttons, bearing the registered number of the car, arranged in groups of five and kept in place by thin spiral springs. If the car ran into anything or anybody the wire would break and the buttons be scattered all over the roadway, so there would be no difficulty in identifying the car. Also, any policeman observing a car without its row of little buttons in front would want to know "why?" Sounds simple!

Consequent upon the very large number of complaints from the general public, a committee of New York Aldermen have been appointed to go into the whole question of taxi-cabs and their conditions of working. The majority of complaints alleged that the taximeters systematically overcharge; one of the first five machines examined by the committee registered $1·80 per hour instead of the $1·50 as allowed by law.

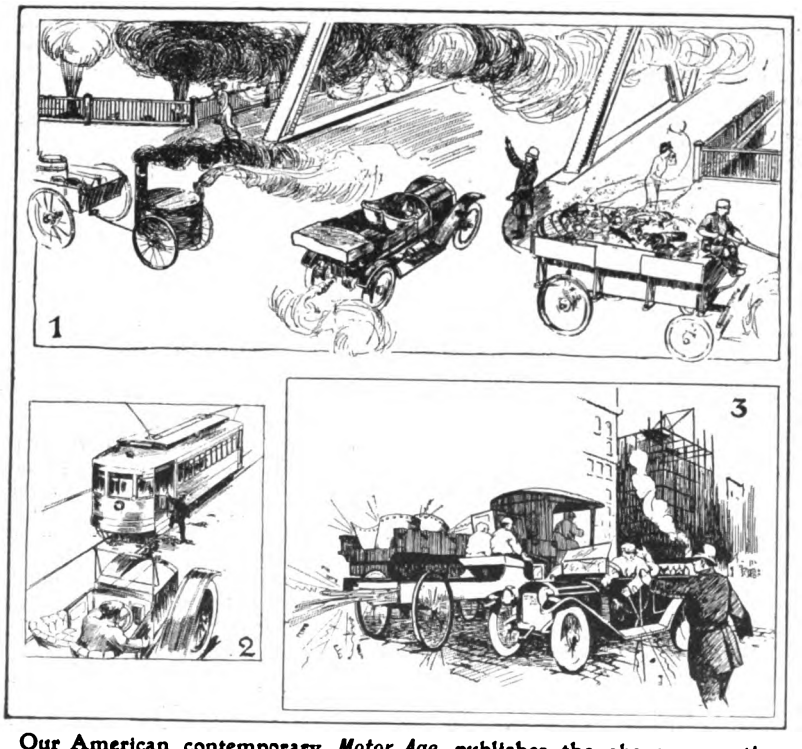
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It is not often that a motorist is summoned for "over-observing" the law, but two chauffeurs were recently arrested in New York because their car was not decorated with official number-plates. As a matter of fact, the plates on the car were larger than the ones issued by the State, and they were also rendered visible by stronger electric lights than are usually employed for the purpose. On this being explained to the magistrate by the owner of the car, the two drivers were dismissed.

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Seeking to develop a district adjacent to Des Moines, Ia., a firm of real estate agents applied to the tramway company to extend their service, but the request was refused. They have now put into service three motor 'buses between the business portion of the city and the new suburb, and should the enterprise prove successful, as it is confidently expected it will, motor 'buses may be introduced to other portions of the city.

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Our American contemporary, *Motor Age*, publishes the above suggestive sketches in connection with the traffic code in use in Washington, which particularly singles out motor vehicles for penalisation in anything that is objectionable. The story told by each picture is as follows:—1. "Every city must to-day make provision against excessive emission of smoke and gases from motor vehicles if not from different sources." 2. "Motor cars should stop 10 ft. behind a street car taking on or letting off passengers." 3. "Mechanical noises in motor cars when moving must be suppressed."

An announcement has already been made that another 500-mile race will be arranged at the Indianapolis Speedway, the event to take place on Friday, May 30th next year. The maximum piston displacement will be 450 cubic inches instead of 600 cubic inches, as this year, while the minimum weight will be reduced to 1,600 lbs. The field will be limited to 30 cars, each of which will qualify by doing one lap, of two and a half miles, at a minimum speed of 75 miles an hour. An endeavour is to be made to secure European entries, and with this end in view Mr. Charles W. Sedwick, the new manager of the track, will shortly make a trip to Europe.

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The scheme of designating main roads by colours is making some progress in New York State, where it has been taken up by the Highway Department, and work will shortly commence on five roads. The colours selected are, New York to Buffalo, blue; New York to Jamestown, red; New York to the Canadian border, yellow; Binghampton to Niagara Falls, green; Oswego to Binghampton, brown. Fences and bridge approaches along the various routes will be painted by the highway officials and the telegraph poles will be decorated with coloured bands by the local automobile club.

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It is stated that the factory of the Canadian Rubber Co., in Montreal, cannot meet the demand for its tyres, and a new factory will, therefore, be started in the States.

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The AUTO MOTOR JOURNAL

MOTOR CYCLE MATTERS.

By "CASTOR."

The Misuse of the Cut-out.

SOME few months since, the Local Government Board issued an Order prohibiting the use of cut-outs on motor cars, but specially exempting motor cycles from compulsory observance thereof for the time being. No surprise, therefore, should be felt in learning that an amended regulation, which will come into operation on March 31st next year, has been framed to include the smaller class of machine, and little concern also will be felt by most of us that this is so. As amended, the regulation now reads: "He shall not use any cut-out, fitting, or other apparatus or device which will allow the exhaust-gases for the engine of the motor car (motor cycle) to escape into the atmosphere without first passing through a silencer, expansion chamber, or other contrivance, suitable and sufficient for reducing as far as may reasonably be practicable the noise which would otherwise be caused by the escape of the said gases."

Personally, I shall be pleased to see the new regulations in force, for it will, if enforced where it is most needed, do much to remove some of the odium at present attaching to motor cycles—and motor cyclists—through the thoughtless behaviour of some of the less responsible class of rider who delight in attracting attention by their noisy progression through main thoroughfares.

Especially has this unpleasant phase been noticeable this year at some of our most popular seaside resorts. One case in particular I have in my mind, that of a certain rider whom I saw driving to and fro along the sea front every fine day during a recent week's holiday, and making, of course, as is the habit of his class, full use of the cut-out. He had evidently also discovered that the maximum volume of sound possible from his exhaust was obtained by retarding the spark and opening the throttle wide, and that the general effect could be improved (from his point of view) by controlling from the exhaust valve lifter, for we had more than one opportunity of noticing that this was his method of driving.

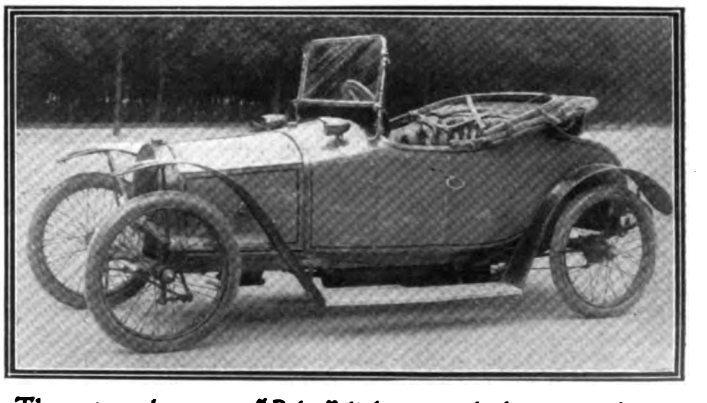
I am sure, also, that during the week in question this rider could never have had time to extend his "tours" beyond the limits of this particular town by more than a few miles, and I doubt whether he even did this. Nor was he by any means the only offender in this matter, for he appeared to be one of a group of kindred spirits who found this their chief source of amusement throughout the day. Could he and the others have overheard some of the remarks their conduct called forth, I think they would perhaps not have worn quite the same self-satisfied expression of countenance, and certainly their manners would have undergone some modification.

It has been practices of this nature, by, I am pleased to believe, the minority of motor cyclists that has caused action to be at last taken by the authorities, and while its enforcement need entail no hardship on the great majority of riders, it should at least deter some of these novices, as they almost always are, from bringing the pastime further into the disrepute from which it undoubtedly suffers.

That the new regulation will entirely remove all cause for complaint on the score of noise, is too much to expect for some time to come. There are silencers *and* silencers, and unless some standard of silence be set it will be impossible to give the regulation full and proper effect. We have the case of the car as a precedent; although it has now for some time been compulsory for all cars to be fitted with efficient silencers and the use of the cut-out prohibited, yet we still find cars emitting all degrees of noise making use of the roads without apparent let or hindrance, moreover it is not at all uncommon to hear the sound of an entirely unmuffled exhaust within the precincts of the City itself. The whole matter, therefore, turns upon the interpretation of what constitutes a contrivance "suitable and efficient" for reducing the sound of the exhaust. To this end some arbitrary standard or standards *must* be set; but it is to be hoped that, with regard to the motor cycle at least, it will not be of a particularly high order, for to my mind an inaudible machine is not an altogether entirely desirable mount. The great bulk of a car is some sort of insurance against accidents arising through failure to *observe* its approach, but a motor cycle, by reason of its small size, is not at all times easily discernible, and to give it an equal guarantee of immunity from accidents its proximity must be made known in some other way, *i.e.*, its exhaust must be capable of being *heard*. The sound need not be in any way unpleasant to the most fastidious or nervous if properly "muffled," and to my mind renders such a machine incomparably superior to the ultra silent kind in the matter of safety to other road users—while traffic conditions and the education of the general public in the use of the roads remain what they are. On countless occasions has this property of audibility served me in good stead, although I pride myself on being a considerate and careful rider at all times.

Therefore I say that though I am all in favour of the application to the motor cycle of the regulation prohibiting cut-outs, yet I do think, in fairness to riders of this class of machine, the standard of silence demanded should not be too exacting.

In this latter connection I was interested to hear that the A.C.U. have issued invitations to manufacturers to take part in a silencer trial this autumn. It will be remembered that some preliminary trials were conducted recently with "adjustable" silencers, fitted, if I remember rightly, to a Triumph and a Rudge machine respectively. The outcome of the preliminary trial is a silencer which is to be used as a standard in judging the relative effectiveness of the specimens submitted for the proposed trial, and it may well be that some connection will be established between these trials and the Local Government Board's new regulations.



The extremely smart "Baby" light car which is now being put on the market by the Croydon Central Motor Co., Ltd., of 110, High Street, Croydon, at the inclusive price of £108.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. A. Holmes, deputy chairman, the Hon Arthur Stanley, vice-president; Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee, Messrs. Adey, Darmaros, Rawson, Tipper, Hardy, Kahn, Wallis, Moores, Tyler, Holland No. 2, Dean, and Shaw.

The minutes of the previous meeting were read and confirmed.

N.S.C. Garages.

Application for honorary membership was made by Mr. Martin Murphy, representing P. Strahan, Ltd., 18, Hereford Road, Westbourne Grove, to represent the Society in the Bayswater district. The application was granted, and the secretary instructed to forward the sign.

Legal Department.

Application for legal aid was made by member No. 495, summoned for exceeding the speed limit on the Chelsea Embankment. The secretary reported the member in benefit, and was instructed to place the case in the hands of the solicitor. Members are warned to be careful while driving on the Embankments, the Blackfriars trap being worked daily. On Putney Hill the police are also very active.

Parliamentary Campaign.

A general discussion took place with regard to the progress being made to induce the Government to amend the Motor Car Act as laid down in the Parliamentary programme. The secretary reviewed the efforts made by the Society to amend the clauses in the Act which dealt unjustly with the chauffeur. He was of the opinion that the time had arrived for more decided action if the Society ever hoped to gain the desired amendment of the Act.

The Hon. Arthur Stanley admired the fighting spirit of the committee, but in seeking powers from Parliament it was always best to go slowly, and not ask for too many concessions at once. Parliament was, and would be for a considerable period, very busy, and to attempt the introducing of a Bill dealing with all the amendments would not be policy. He was of the opinion, however, that the most vital plank in the Society's programme might be gained. He would use his utmost endeavours to secure this advantage for chauffeurs and, if necessary, would promote a private bill, which he felt sure would have an enormous amount of support from both sides of the House of Commons.

Mr. Cates said that he thought the suggestion should be accepted. It would be the thin end of the wedge; and, having obtained one concession, the committee could then proceed with the other desired amendments. The R.A.C. would doubtless support the Society, and use its influence were a private bill introduced.

The Hon. Arthur Stanley assured the committee that the R.A.C. would heartily support any movement in respect of this question.

It was agreed to leave the matter in the hands of Mr. Stanley, who promised to give it his immediate attention.

The committee tendered their thanks to the vice-president for his attendance and interest in the Society's work.

The War Office Circular was read and discussed, the general opinion being that it was in no way beneficial to the chauffeur in private service.

Letters were read from Mr. Holland No. 1, Mr. Swaits, and Mr. Bartley.

Review of Events.

The notes of the last meeting are interesting. Regarding the Parliamentary campaign, for some time past the committee have been very much exercised at the slow progress made to obtain the amendments of the Motor Car Act. On August 2nd, 1911, a deputation from the Society, introduced by the Hon. Arthur Stanley, placed before the Right Hon. John Burns, President of the Local Government Board, the need for amending the Motor Car Act, Mr. S. F. Edge, Mr. C. W. Nairne, Mr. H. Pye, and the general secretary formed the deputation. Mr. John Burns expressed himself in sympathy with the proposed amendments asked for by the N.S.C., with the exception of a Board of Trade examination, and led the deputation to expect legislation during 1913. Hearing nothing as to what Parliament was likely to do in this matter, a letter was sent to Mr. John Burns asking what steps were likely to be taken during the then session of Parliament. To this the usual acknowledgment was sent. A month later a reminder was sent that the letter remained unanswered. Again the official acknowledgment, but up to date no answer. Meanwhile the daily papers have made a special point of reporting anything in the shape of motor accidents, which means the manufacturing of public opinion hostile to the motoring industry, and detrimental to the Society's Parliamentary aims. In the majority of accidents, it is noticeable that the chauffeur is blamed. It does not appeal to the daily screamers that the chauffeur has to drive to orders, and that in cases of exceeding the speed limit if the onus were placed upon the owner of the car it would probably lessen the evil.

Members will follow with interest the work Mr. Stanley has taken in hand. Something must be done to bring pressure to bear on the powers that be if the move is not successful, and it is to be hoped that every branch of the motor industry will help to supply the required pressure if found necessary.

The list of applications for membership this week is most gratifying. This, together with the splendid attendance of the committee, is very encouraging.

Accepted for Membership.

Alfred Davis, London, S.W.	Bert Knighton, Stoke-on-Trent
Sydney Bonny, London, S.W.	John Moon, Tynemouth
Walter B. Everett, London, S.W.	F. G. Clements, London, S.W.

Applications for Membership.

R. J. A. Allison, London, W.	William R. Gibb, Dundee
Arthur West, London, S.W.	Hubert Mustoe, Great Missenden
Ernest Elsdon, York	William A. Turner, London, W.
Archibald Mills, Guildford	Philip Withill, London, S.W.
Arthur G. Manning, London, W.	Edward J. Price, London, W.
F. V. Thrussell, London, W.	Will Gatling, Raynes Park
Edwin C. F. Young, Raynes Park	William J. Fenn, London, N.W.
Albert E. Cutter, London, S.W.	

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

91.

TWO MAGNETO PROBLEMS.—At the present moment, high-tension magnetos are the principal subject of discussion amongst the drivers at our garage. Two problems in particular are agitating the minds of the men, who have taken up these points with great fervour; so much so, that they are divided into two camps over the matter. We cannot come to a satisfactory conclusion, so we are asking you if you could give us an explanation. I may as well say that I, personally, have tried the first of the two problems, and have found that it does *not* work; but, after telling the others—who say that it ought to work—they simply tell me that I made some mistake in wiring-up. However, the magneto is a sensitive and expensive instrument, and I don't want to run any risks, so I let the matter rest at that first experiment; but, in spite of it, I have not found a plausible reason why it really won't work.

The question is, whether it is possible to start an engine by simply wiring-up an accumulator to a high-tension trembler coil, and connecting the high-tension terminal of the coil to the high-tension terminal of the magneto, with the intention of leading the high-tension current from the coil through the distributor of the magneto to the plugs where the spark would be sufficient to explode the charge and thus start the engine.

The second problem is:—A heavy car has broken down owing to some failure in the armature of the magneto. No other ignition is fitted, no spare is available, and, as it generally happens in cases like this, the car broke down "miles from anywhere." A little low-powered car comes along and offers its assistance, but it is found much too weak to take the big fellow in tow. Is it possible to utilise the high-tension magneto of the little car to supply sufficient current for the ignition of both engines? It is contended by some that it ought to be possible to run both engines simultaneously by, so to speak, dividing the current of the magneto of the little car at the collector-brush, and take one part of it by means of a long wire to the distributer of the broken-down magneto, and start up the big engine while the little one is running. By this means it is intended to feed the distributor of the broken-down magneto with current from the armature of the little car, and so keep both cars running, even if running badly, and enable the big one to reach some place where a repair could be effected. Do you think that is possible, and if so, how could it be done?—*T. Wallis and H. Adey.*

Reply.—I will endeavour to answer the questions contained in the above lines without going very deeply into the electrical problems which they involve. I will say so much that they seem to me to be the outcome of that little knowledge, which is a dangerous thing, and I should strongly advise anyone who feels inclined to experiment with his magneto to leave well alone. There is much more in a high-tension magneto than meets the eye, and although these machines have now been brought to a very high state of perfection, they still are of such a nature that it is unwise to take liberties with them.

The first problem is impossible, and the explanation is comparatively simple. An electric current follows the line of least resistance, therefore the high-tension current induced in the secondary winding of the coil will, in preference to travelling through the distributer to the plug, where it would have to jump the gap before it returns to earth, take the path through the high-tension brush on to the slip-ring, and through both windings of the armature to earth. You seem to overlook that the inner end of the magneto armature is earthed, so that the wiring forms a comparatively easy path for the current, which does not contain a gap like the one through the plug. There are quite a number of other points connected with this problem, which, however, I will not touch; but let me tell you so much, that to try this experiment is a very dangerous thing. It jeopardises the very life of your magneto, because the current travelling through the armature may seriously affect the insulation as well as the magnetism of the field magnets.

As to the second problem, it is to my mind equally impossible for a similar reason, quite apart from the fact that the current generated by the magneto of the little car, as in the first problem, would follow the line of least resistance, which in this case is through its own distributer and the plugs of its own engine. The current generated by a high-tension magneto is only available for ignition at the moment of separation of the platinum points at the contact breaker, and I daresay that all of you know sufficient about electrical ignition as to appreciate the importance of the fact that this should take place at the exact moment, when the piston has reached the dead centre after completing the compression stroke. The magneto of the little car, however, is driven by the crank-shaft of the engine of the little car in such a manner that the moment of breaking contact coincides with the top dead centre of the crank-shaft of its own engine only, therefore it only delivers current at the firing moment of its own cylinders, and at all other times in between the platinum points of its contact breaker are closed, so that no current is delivered through the high-tension terminal.

Surely none of you imagines for an instant that it is

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possible to run two engines at absolutely the same number of revolutions with the firing-point in both occurring at precisely the same moment.

Provided the little car is also a four-cylinder one, it may be possible to remove its magneto bodily, and fix it by some means or other on the engine of the big car in place of the broken-down magneto. Even if it is a considerably smaller pattern than the one on the big car, a clever man may be able to fix it up somehow and, by considerably closing the points on the plugs of the big motor, may succeed in getting the big engine to run on the magneto of the small car. He will then have little difficulty in using the big car for towing the little one to a place where repairs can be effected.

A feature common to both problems is that you overlook the "earth" return, by which the current finds its way back to the armature and thus completes the circuit. If it were not for this "return" the circuit would be open and no current would flow.—*N.S.C.* 16.

ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Gas main is being laid down at Knebworth—special caution required here. London Road, Grantham, is undergoing repair; also at 12½ miles south, and loose metal at 11 miles south; also 7½ miles north of Grantham. The Watch Committee of the Soke of Peterborough have recommended that the police take stringent measures against motorists driving furiously through the town, especially in Narrow Street (6 mile limit).

LANCASHIRE.—Members are requested to drive carefully through Poulton and district.

YORKSHIRE.—*Guiseborough-Redcar Road, via Gearby.*—Closed, pending the re-construction of Lockets Bridge, Guiseborough; alternative route *via* Marske, turn right through Upleatham and Skelton Ellars.

Special caution is again recommended in the speed limits at Ilkley and Burley-in-Wharfedale.

EAST.

London-Yarmouth Road.—Special care is necessary entering Ipswich from the Colchester end.

Norwich-Cromer Road.—Extreme care should be taken when crossing the temporary bridges at St. Faith's, Hevinghan and Ingworth, which are narrow and only suitable for light traffic.

SOUTH.

BATH ROAD.—Members are requested to slow through Slough and Maidenhead. At Maidenhead the road is closed from Castle Hill to All Saints' Avenue; alternative route St. Marks Road and All Saints' Avenue. Repairs are to hand at Kiln Green, also just east of Twyford.

Reading-Oxford Road.—Wallingford Bridge is closed to traffic, and members should proceed *via* Abingdon.

FOLKESTONE ROAD.—On the Folkestone-Canterbury Road a control is likely to be working 2 miles from Folkestone.

HERTS.—Special care is necessary between Tring and Northchurch owing to surface repairs, and the installation of telephone wires, &c., also at Bourne End.

KENT.—*Prick End, Chislehurst.*—Control likely to be working between the Church of Annunciation and the middle of Red Hill on the road to Mottingham.

LONDON DISTRICT.—On account of timing operations special care is necessary in Regent's Park Road, N.W.; near Church End station, Finchley; Golder's Green; Redcliffe Gardens, S.W.; the Boltons, Earl's Court Road, S.W.; Victoria Embankment; Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; Croydon; Purley; between Wimbledon and Ewell; Hounslow and Staines; Hounslow-Colnbrook; Roehampton; Putney Heath; Harlesden; Maida Vale; Highgate; near Nags Head, Holloway; Lewisham High Street; Sudbury to Harrow Hill.

MIDDLESEX.—Control working on Staines, Sunbury Common Road.

Wood Green.—For the same reason special care is necessary near junction of Bounds Green Road and Jolly Butcher's Hill.

Uxbridge Road.—Controls are likely to be working between Southall and Uxbridge. Control between Hampton and Hampton Court Bridge on tram lines.

OXFORD.—Controls likely to be working at the following places: in High Street, St. Aldate's Street, New Road-Botley Road; all of which are in the ten-mile limits; also Woodstock Road, Southmoor Road, and the main Oxford-London Road *via* High Wycombe at the "Three Pigeons" near Wheatley.

ESSEX.—*Woodford.*—Special caution is advisable between Police Station and Bancroft Schools.

Loughton.—Night control working quarter mile from Epping.

SOUTHAMPTON ROAD.—Controls are working at night through Egham. Repairs are in hand on the Egham-Windsor Road, between Sunningdale and Bagshot, near Windmill Inn, also between Jolly Farmers and Frimley. Water pipes are being laid down through Frimley; repairs are proceeding at Farnborough.

SOUTHAMPTON DISTRICT.—The tramway track is still under reconstruction in Shirley Road at the junction of High Street and Regent Park Road, also at top of Four Post Hill.

SURREY.—*Portsmouth Road.*—Flashlight controls are working between Kingston and Esher. Between Peasmarsh and St. Catherine's Hill, Guildford, re-metalling is now proceeding.

Eastbourne Road.—Special care is advisable near Kenley police station, and gas works, Whyteleafe.

SUSSEX.—Members are requested to observe the 10-mile limit at Uckfield.

Surface repairs now proceeding at the following points:—Between East Grinstead and Forest Row, Haywards Heath - Wivelsfield, Lewes - Chailey, Newick-Maresfield, Eridge-Boar's Head, Silverhill-John's Cross, Vinehall-Cripps Corner, Cripps Corner-Broad Oak.

WEST.

CARDIFF DISTRICT.—Special caution is needed in Cathedral Road from Cowbridge Road to tram terminus, on the Cowbridge-Swansea road at Canton, at Rumney on the Newport road, Leckwith Common on the Penarth road; also at Dinas Powis and Eastbrooke on the Cardiff-Penarth-Barry road.

GLOUCESTER AND BRISTOL DISTRICTS.—*Bristol-Weston Road.*—Controls are working at or near Long Ashton, Bourton Tunnel, Wraxall, Hailsea.

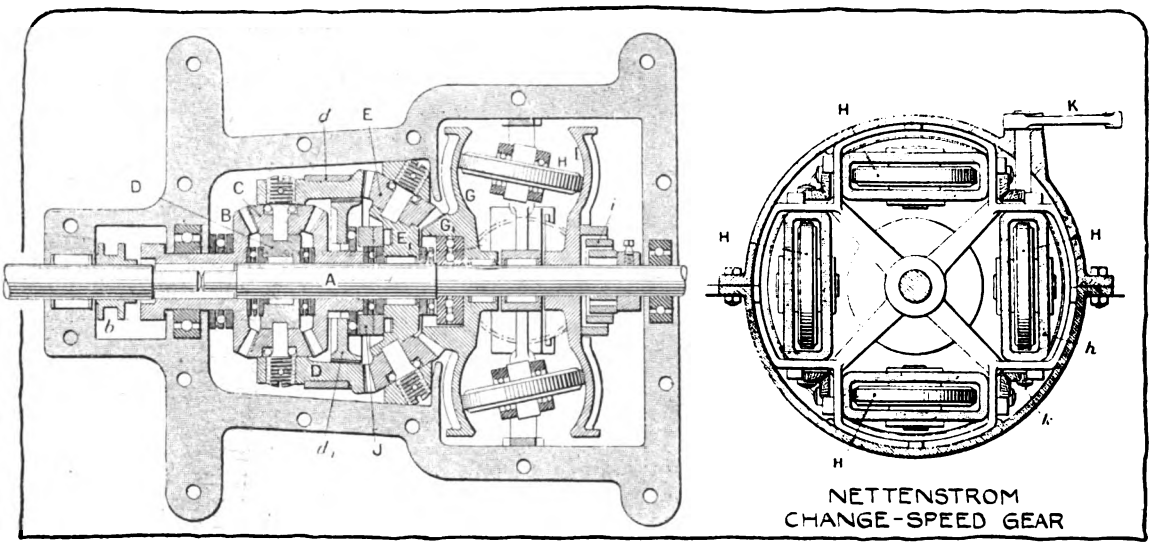


FOR THE CANADIAN MARKET.—One of a batch of Sheffield-Simplex cars specially constructed with high wheels for good clearance of both back and front axles, which have been put through for Canadian work, under test on the Yorkshire moors for the conditions for which they have been designed. One of these cars will be shown at the Toronto and Ottawa Exhibitions by the Canadian Simplex Auto Co.

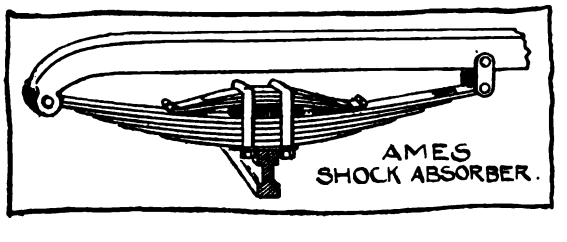
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FOREIGN MISCELLANY.

An Ingenious Change-Speed Gear, the invention of a Norwegian, Nettenstrom, is illustrated in the accompanying drawings. In the sectional plan view the engine-shaft enters the box on the right, while the driven-shaft leaves it on the left. The crown wheel, B, is loose on the driven-shaft, but can be locked to it by means of the dog-clutch, *b*. The ring-shaped frame, D, carrying the bevel-pinions, C, is loose on the driving-shaft, but can be locked to it by means of the cone-clutch, d_1. The crown-wheel, A, is keyed to the engine-shaft. The frame, E_1, which carries the bevel pinions, E, is loose on the driving-shaft, but can be locked to the same by means of the dog-clutch, J. The crown wheel, G, is loose on the driving-shaft, while the disc, I, is keyed to the latter, the connection between the two being through the friction wheels, H, the axes of which are fixed to the frame of the box. The action of the gear is as follows: To obtain top speed (direct drive), the cone clutch, d_1, is let into engagement, whereby motion is transmitted from the engine-shaft through D, C, B, and *b* to the driven-shaft, the whole revolving solid. For the intermediate speeds the dog-clutch, J, is engaged, when the speed will depend on the position of the friction wheels, H, the setting of which can be altered from the outside by means of the lever K. The reverse is obtained by keeping the frame, D, stationary by tightening the brake band, *d*, whereby the motion of the driving-shaft is transmitted through the bevel pinions, C (which rotate on their axes), to the crown wheel, B.—*Omnia.*

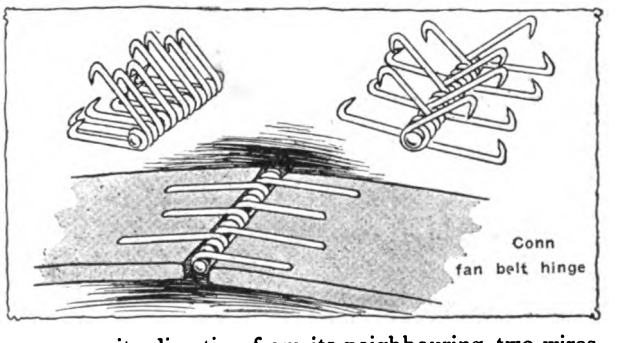


Ames Leaf-Spring Shock Absorber.—This consists of a small three-leaf spring attached to the elliptic spring by a double U-clip; a rubber cushion is inserted between the two springs. This arrangement does not limit the free movement of the main spring as long as only moderate road inequalities are encountered, but when the car strikes a bump or thank-you-ma'am, the small spring counteracts the excessive movement of the large one as well as its sudden rebound, thereby adding to the life of the spring proper.—*The Automobile.*



It should not be forgotten, however, that the addition of such a counter-spring has the somewhat paradoxical effect of *decreasing* the elasticity of the springing.

Conn Fan Belt Hinge.—An ingenious fan belt hinge for automobiles is the Conn type shown in the sketch. Each hinge consists of seven pieces of hook-pointed steel wire which are bent in the upper left figure, and arranged on a steel pin which has a head on each end, keeping the wires tightly in place and preventing their coming off. When the hinge is put to use, every second wire is turned in an opposite direction from its neighbouring two wires, giving the hinge the appearance seen at the right. The ends of the belt are then inserted between the upper and lower rows of points on each side of the hinge, after which the points of the hooked ends of the wires are hammered into the belt material.—*The Automobile.*



Gear-box Leak.—There is still opportunity for improvement of the average gear-box in the way of preventing oil leakage. Despite manifold preventive means which lie at the designer's command, the gear-shifting rods continue to serve as fairly efficient pumps in extracting superfluous oil from many a gear-set, while in other cases the shaft bearings are no less active causes in combining to waste the lubricant and render unlovely the underparts of the machine. Little pools of oil beneath a car standing by the roadside usually are expected to denote the presenoe of a decrepit car of ancient vintage, but unfortunately such is not invariably the case.—*Automobile Topics.*

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RACES, RECORDS, AND TRIALS.

R.A.C. to Hold Fuel Trials.

THE Committee of the R.A.C. has decided to accept the suggestion of the Petrol Committee, and will hold a series of Trials for liquid, solid, and gaseous fuels for both pleasure and commercial vehicles, the Trials to be carried out both in the car and on the bench. The Technical Committee will now proceed to draw up the regulations and make arrangements for the Trials.

Manchester A.C. Hill-Climb.

ON the hill, nearly two miles long, at Hayden Bridge, the Manchester A.C. held their postponed hill-climb on Saturday. There was not a large number of entries, but some good sport was seen. There were three classes, and in that for cars under 17-h.p. the best performance was by C. Bianchi, on Mr. W. M. Letts' 15-h.p. Crossley. In the class for cars between 17 and 26-h.p., Mr. A. Fillingham's 20-h.p. Vauxhall won easily, and in a second run the car's time was 3 mins. 2 secs., and the figure of merit ·99, this being the best formula performance of the day. Mr. R. Wilkie, on another Vauxhall, did very well in the Trade Section, as also did Mr. G. K. Gilchrist, on a 15-h.p. S.C.A.R. In the class for cars over 26-h.p. Mr. J. Higginson's 80-h.p. La Buire took the bend in splendid style, and would have made the best time but, unfortunately, a seized piston spoilt the run. Mr. G. Hubert Woods, on his 20-h.p. Crossley, made the fastest time of the day, doing 2 mins. 37⅖ secs. Mr. M. Crossland's 45-h.p. Daimler was second.

Scottish A.C. Hill-Climb.

SOME capital sport was witnessed at the Annual Hill-Climb of the Scottish A.C. at Tummel Bridge on Saturday week, competition in each of the classes being very keen. In the class for cars of 12-h.p. and under, Mr. A. H. Betts's 11·9-h.p. Arrol-Johnston was first on time and formula, while the second on both these points was Mr. John Anderson's 12-h.p. Argyll. Among the cars from 12-h.p. to 20-h.p., Mr. T. D. M'Ewan's 12-h.p. Talbot was first on handicap, making the best formula performance ~~of the day and second on time~~, the best in point of time being Mr. John Blackwood's 15·9-h.p. Argyll, while a similar car entered by Mr. J. Walker Todd was second on the handicap. In the class for cars over 20-h.p. Mr. B. M. M'Crae's 20-h.p. Werbell was first on time and formula, Mr. H. V. Whyham's 20-h.p. Metallurgique being second on formula, and Mr. James G. Connell's 22-h.p. Darracq second on time. The fastest run of the day was made by Mr. J. C. Seligman on his 25–30-h.p. Sunbeam. Among the motor cycles Mr. A. R. Fraser, on a 3½-h.p. Rudge, made the best performance on handicap, and Mr. J. G. Beveridge's 3½-h.p. Triumph was fastest. In the S.M.T.A. event, the Western Motor Co.'s 25-h.p. Talbot won on time and formula with the Peebles Motor Co.'s 12–16-h.p. Sunbeam second.

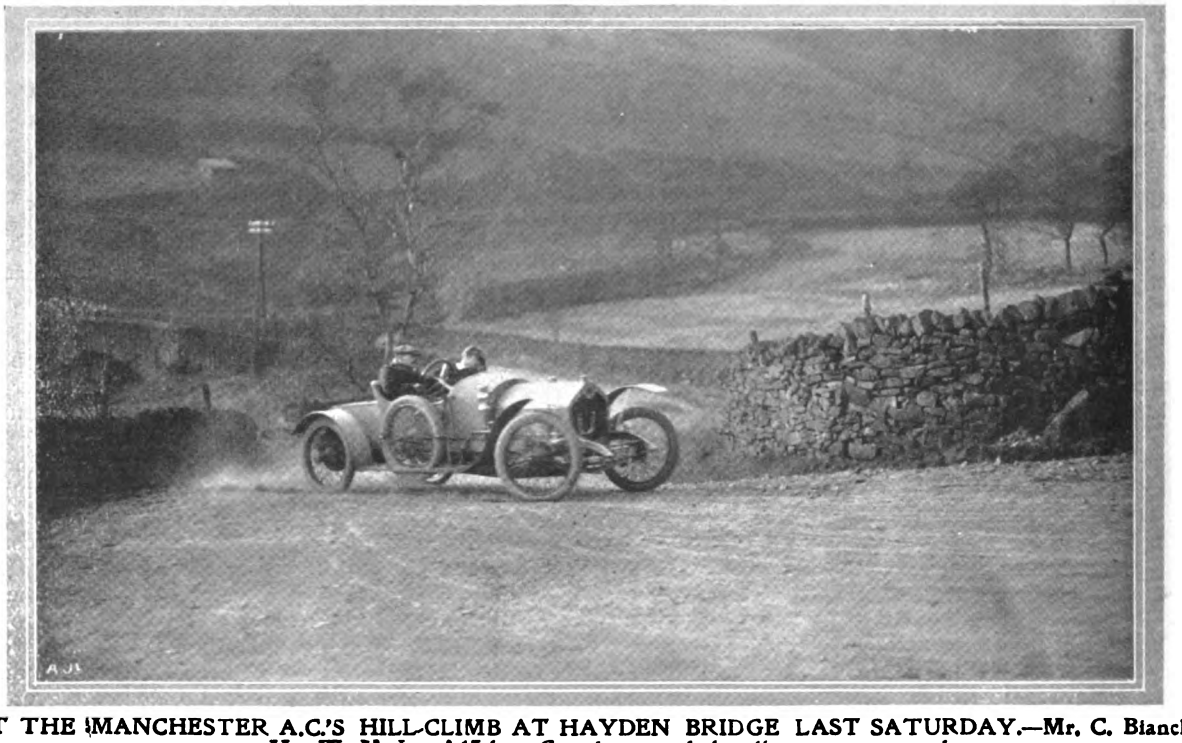
The Napier Top-Gear Run.

AN official certificate has just been issued regarding the R.A.C. trial with a 59·9-h.p. Napier car from September 16th to September 21st. This states that the car, entered by Mr. S. F. Edge, 14, New Burlington Street, London, W., covered the distance of 795·875 miles from London to Edinburgh and back at an average speed of 18·76 miles an hour.

Throughout the trial the car was started and driven upon top gear, a lower gear not being used at any time.

Owing to the presence of troops between Stevenage and Welwyn the progress of the car was much handicapped, some miles having to be done at a walking pace.

At the discretion of the driver either the engine was stopped or the gear put into neutral when descending



AT THE MANCHESTER A.C.'S HILL-CLIMB AT HAYDEN BRIDGE LAST SATURDAY.—Mr. C. Bianchi gets Mr. W. M. Letts' 15-h.p. Crossley round the elbow turn at speed.

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hills. Means were provided whereby the driver could, at will, alter the size of the fuel jet independently of the movement of the throttle lever, and also whereby he could feed oil direct to the cylinders.

The car was oiled and greased each day; with this exception no work of any kind was done.

The petrol consumed was 27·78 gallons, being a consumption of 27·65 miles per gallon, or 67·55 ton-miles per gallon.

After the road portion of the trial the car was driven to Brooklands and timed over the flying half-mile. The speed attained was 75·69 miles per hour. No observation of reliability or consumption was recorded while the car was travelling from London to Brooklands, but the car remained under observation at all times.

Bore and stroke of engine	127 mm. × 127 mm.
Number of cylinders	6
Weight of car, front axle	2,182 lbs.
,, rear axle	2,186 ,,
Total weight	4,368 ,,
Weight of load (live)	602 ,,
,, (dead)	502 ,,
Total running weight	5,472 ,,
Gear ratio, on top gear	2·7 to 1
Size of tyres	35 ins. × 6 ins.
Wind area of body	10·3 sq. ft.
Country of origin	Great Britain

A Five-Mile Motor-Cycle Record.

ON a single-cylinder Singer, G. E. Stanley, at Brooklands, on Saturday, broke his own 5 mile record for the 500 cc. class, doing the distance from a flying start in 4 mins. 14⅘ secs., equalling an average speed of 70·75 miles an hour. He also beat the 5 mile record for the 750 cc. class.

On the previous Thursday, Stanley tried for the hour record, but several mishaps delayed the start until late in the afternoon. He then succeeded in covering some 21 laps, setting up a new record for 50 miles, his time being 43 mins. 40 secs., nearly 2 mins. less than the previous best.

The A.C.F. Grand Prix Race.

IT is announced by the Automobile Club of France that up to the present eight entries have been made for the next Grand Prix Race, including three Sunbeams, three Peugeots, and two Delage cars. Entries must be made before the 31st instant.

The Gaillon Climb.

AT the Fourteenth Annual Climb up the Gaillon Hill on Sunday last, there was somewhat of the glory of old time events. The entries numbered just one over the hundred, and included all sorts of cars, both touring and racing, as well as a large number of motor cycles, in which department the British element was very strong. The outstanding performance of the meeting was, of course, that of Erle, who took up the racing Benz in 22 seconds, thus clipping 1 second off his own record for the hill, which has stood for two years. The timed portion of the hill is exactly 1 kilometre long, and this, therefore, gives a speed of 163·6 k.p.h., or 101·6 m.p.h. The next best run was by Chavez, on a Fiat racing car, which went up in 26⅖ secs. Crespelle, on a Crespelle car, was third in 36 secs. Among the touring cars the best run was by Derny, on a Hispano-Suiza, in 43 secs., Erle, on a touring Benz, taking ⅗ of a second longer. Mollet on a S.C.A.P. was third, and Rigal on a Sunbeam fourth. A machine which attracted a great deal of attention was the Bedelia racing car, fitted with a Renault air-cooled engine placed transversely, the drive to the back wheels being by a pair of belts, which must have been between 18 and 20 ft. long. The time for the hill was 39⅗ secs. Of the 27 motor cycles which took part in the hill-climb, the fastest run was 42 secs., made by Dixon on a Singer, Mundy on a Rudge being second in 43⅖ secs., Devay on a Triumph



GAILLON HILL-CLIMB.—Erle, on the racing Benz, travelling up the measured kilom. in 22 secs., equal to 163·6 k.p.h. (101·6 m.p.h.).

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third, 42⅘ secs., South on a Rudge fourth in 43 secs. The second class was won by a Motosacoche, ridden by Gignet, his time being 44⅕ secs.

The Vanderbilt and Grand Prize Races.

NEITHER the Vanderbilt Cup nor the Grand Prize Races attracted a very large number of entries, despite the increased interest now being taken in motor road racing in the States, and the Grand Prize Race was postponed at the last minute for practically a fortnight owing to the heavy rains stopping the work of improving the course, it being incidentally hoped that the delay might enable further entries to be beaten up. The actual entries were ten for the Vanderbilt Cup and eleven for the Grand Prize, but the latter were reduced by one through the fatal accident to Bruce Brown, as recorded in our last week's issue, when practising on the course. Under the new arrangement the Vanderbilt Cup Race was run off on October 2nd, when before a crowd estimated at some 50,000 people, it was won by Ralph de Palma driving a Mercedes car, his time for the 300 miles being 4h. 20m. 31s., the second place going to Hughes on a Mercer, who was only 42 secs. later, and Wishart on a Mercedes being third, 16 mins. after the winner, and Anderson, on a Stutz, fourth. Tetzlaff, on a Fiat car, was leading until the twenty-third lap, when a broken wheel put him out of the race. The two minor races were held on the following day, when the Pabst Trophy was won by Roberts on a Mason, who covered 220 miles in 3h. 4m. 53s., while the Wisconsin Trophy went to Endicott, also on a Mason, who covered the 173 miles set for this race in 3h. 6m. 45s. The Grand Prize Race was got through on Saturday, when Caleb Bragg, on a Fiat car, secured a victory, taking 5h. 59m. 29s. for the distance of 409 miles. Bergdoll, on a Benz, was second, Anderson (Stutz) third, and Oldfield (Fiat) fourth. The race was marred by a serious accident to Ralph de Palma. When trying to pass Caleb Bragg his Mercedes car went into a ditch, both the driver and his mechanician having their legs broken and being otherwise seriously injured. Last year the race was secured by Bruce Brown on a Fiat, he being also the winner the previous year, when he was driving a Benz car.

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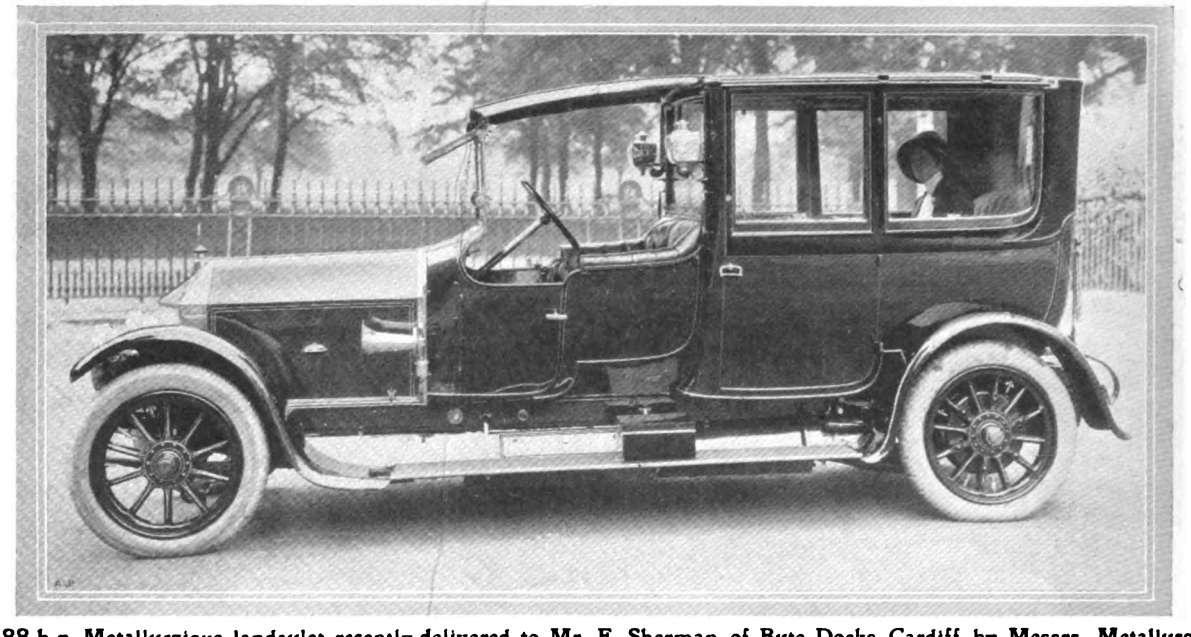
The Next Motor Van Parade.

DETAILS have now been issued by the Commercial Motor Users Association of the arrangements for the Seventh Annual Parade of Commercial Motor Vehicles and Tractors to be held on Whit Monday, May 12th, 1913. There are again a large number of prizes offered, including some special ones for drivers of what are termed "Parcel cars," vehicles with three or four wheels and of a weight not exceeding 7 cwt., unladen. Entries close on February 1st next, but will be accepted later on by the payment of a fine. Entry forms may be obtained from Mr. F. G. Bristow, secretary of the C.M.U.A., 89, Pall Mall, S.W.

Russian Heavy Vehicle Trial.

IN the presence of the Minister of War and a number of highly-placed military officials, fifty-four vehicles of various types left St. Petersburg in the Russian Military Trials of heavy vehicles on the 2nd inst. The first stage was to Nijni-Novgorod, a distance of 189 kiloms., which was covered in about eight hours and a quarter. The next day the journey was continued to Valdaj, a run of 139 kiloms., while on the Friday the destination, after a trip of 89 kiloms., was Volotchoc. During this run observations were taken as to the fuel consumption of the competing vehicles, the conditions being rendered very trying by a heavy fall of snow. The next stage was to Tver, while Moscow was reached on Sunday, by which time the number of competitors had been reduced to forty-four. The arrival at Moscow was marked by an accident to one of the cars following the trials through being driven into a ditch, the owner having both his arms broken, and the chauffeur being also seriously injured.

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38-88-h.p. Metallurgique landaulet recently delivered to Mr. F. Sherman, of Bute Docks, Cardiff, by Messrs. Metallurgique Ltd., of 110, High Street, Marylebone, London, W. It is one of the latest 1913 chassis, which is capable of very high speeds, yet runs remarkably smoothly and quietly. It is hardly necessary to point out that the fine bodywork is by Van den Plas.

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Current Items of Interest.

Olympia Motor Cycle Show.

There will be a little over a week's interval between the Motor Car and Motor Cycle Shows at Olympia this year. The Car Show—to which H.M. the King has graciously extended his patronage—will be open from November 8th to 16th, and the Motor Cycle Show will open on November 25th and close on the 30th.

R.A.C. Roll of Honour.

It has been agreed by the Committee of the R.A.C. that a special book shall be kept in which the names of those who have rendered special services to the Club, such as the Hon. C. S. Rolls and Mr. J. Lyons Sampson, can be recorded after their death, with details of their services. There is a suggestion that these names, or some of them, shall at some future time be transferred to a mural tablet in the Club.

The Same Old Bogey.

Someone down Richmond way has just awakened to the fact that at the recent conference on motor 'bus traffic the subject of mud splashing was not considered. The Mayor of Richmond is to be approached with a view to a resolution on this fearfully important topic being included amongst the resolutions passed the other day. Why not save everybody's time by applying for the report of the Metropolitan police upon this much discussed question?



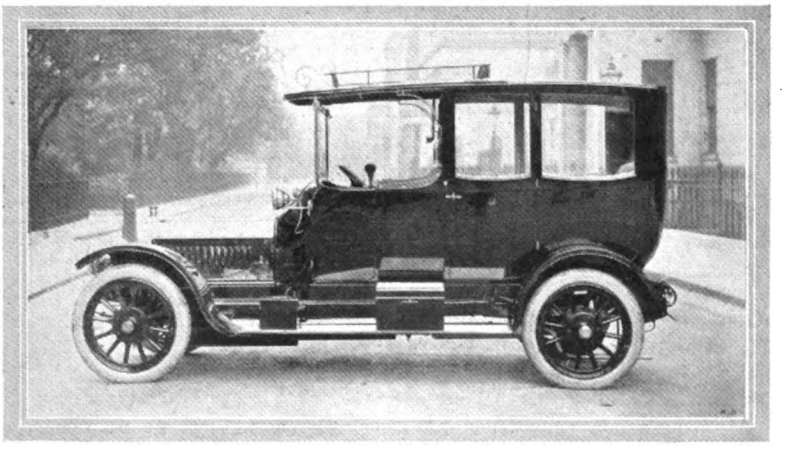
A 12-16-h.p. Wolseley touring car rounding a tricky corner near the Galley Head, Co. Cork, Ireland.

More L.C.C. Petty Persecution.

Surely the R.A.C. or the A.A. and M.U. or the two working in conjunction, might on principle have taken up the case of Mr. Leonard Bidwell with which we deal elsewhere editorially. He was summoned by the L.C.C. for keeping a motor cycle without a licence, but when the summons was heard it was shown that he held a licence for a motor car for which he had paid 3 guineas and having disposed of the car he thought the licence would cover the motor cycle which he subsequently bought. Mr. Hopkins, the magistrate, said an endeavour was being made to extract from the Motor Car Act something which could not be extracted from the old statutes relating to the licensing of vehicles. He favoured the defendant's view that the greater included the less. The L.C.C's. solicitor thereupon said he would have to ask for a case to be stated and the magistrate pointed out to the defendant that it would be cheaper for him to pay the licence duty for the cycle. On this being agreed to the magistrate made an order.

Co-Operative Motor Delivery in U.S.

In a recent issue of the *Board of Trade Journal* the Acting British Consul-General at Chicago (Mr. H. H. Cassells) reports that motor delivery having proved a success, merchants in several cities are using it on the co-operative plan. In Minneapolis three of the leading establishments have a central clearing and routing station, and use six cars. One of these cars makes five calls daily at each of the stores, collects the packages and takes them to the garage. There they are sorted and assigned to the five remaining cars, each one of which makes three trips daily. It is said that the cost for delivery is about one-half that of horse haulage, while the range of trade is greatly extended.



A smart 18-28-h.p. Clement limousine which has just been acquired by Mr. A. H. Wrey through the Clement Motor Co., of Leicester Street, W.C. This charming model has very graceful lines, the windows being frameless and curved to correspond with the streamline form of the body.

"Brum's" Suburban Roads.

One of the most active centres of the Roads Improvement Association is the Midland one. It has been considering the suburban and approach roads to Birmingham, where it is suggested that there is considerable room for improvement, and also need for a more uniform system of maintenance. A sub-committee has been appointed to go thoroughly into the matter and to prepare a memorandum, which will be laid before the city surveyor. Through the representations of the centre, an improvement has been effected at the approach to Washford Bridge on the Alcester Road.

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Road Board Grants.

DURING the months of July, August, and September, 1912, the Road Board, with the approval of the Treasury, have made advances amounting to £172,703 from the Road Improvement Fund to County Councils and other highway authorities, as follows, this being the eighth list :—

	£
For road crust improvements	136,724
For road widenings and improvement of curves and corners	5,422
For road diversions	407
For reconstruction and improvement of bridges	19,000
For construction of new roads and bridges	11,150

The total grants, after deducting grants cancelled, up to September 30th, 1912, are as follows :—

	£
For road crust improvements	662,150
For road widenings and improvement of curves and corners	75,218
For road diversions	21,206
For reconstruction and improvement of bridges	36,475
For construction of new roads and bridges...	16,078

Advances by way of loan have also been made to the sum of £108,857.

In addition, further advances, amounting in the aggregate to about £702,000, have been indicated to highway authorities towards works of road improvement of which the details are still under consideration and discussion.

The largest grant is that of £35,500, for improvement of road crusts, to the Berkshire C.C., the next heaviest being £15,000 for new roads and bridges, &c., plus £5,719 for road crust improvements, to the Lancashire C.C. Of the total amount included in this last list, £153,208 is allotted to England, £7,804 to Scotland, £6,646 to Wales, and £5,045 to Ireland.

Motor Car Building in Western Canada.

DURING the past six years or so a fairly extensive motor car industry has been built up in the Eastern part of Canada and a considerable number of Canadian built vehicles have figured among Australian imports. It is now announced that a motor car plant has been started in Moose Jaw in Assiniboia, and it will direct its attention to the building of an "all-Canadian" car.

R.M.Y.C. Prize Winners.

THIRTY names figure on the list of boats which have won prizes in races given by the Royal Motor Yacht Club during the season just closed. Mr. H. W. Hutchinson's "Dranoel," with eighteen prizes out of thirty starts, including seven firsts and eight seconds, easily heads the list; and the Earl of Hardwicke's "Springmaid" is second with eleven prizes out of seventeen starts. Mr. J. Bird's "Rip III," Mr. F. B. Armstrong's "Solace," and Commander Cumming's "Commander" each have won eight prizes.

C.M.U.A. to Tackle Fuel Problem.

IN view of the present high price of petrol and the possibility of still further increases in the future, the Commercial Motor Users Association have appointed a Fuels Committee to discuss the whole question and bring forward definite proposals. Col. R. E. Crompton, chairman, suggested that they should in every way encourage the use of paraffin and steam engines for commercial motor work. The committee consists of Col. Crompton, Major H. C. Wilder, Messrs. T. B. Browne, D. S. Kennedy and H. W. Wigan.

The Russian Motor Exhibition, 1913.

DETAILS have now been practically settled regarding the International Automobile Exhibition which is to be held at St. Petersburg in April or May of next year. The Exhibition will include motor cars, motor boats, commercial vehicles, engines and accessories ; and applications for space may be addressed to Mr. W. G. Williams, the Society of Motor Manufacturers and Traders, Maxwell House, Arundel Street. November 28th is the latest date for receiving applications.

Motor Car Trade with Russia.

SOME figures just published in the *Board of Trade Journal* show that last year 3,851 motor vehicles, including motor cycles were imported into Russia, the value being £1,082,540. In the previous year the imports were 2,236 vehicles valued at £741,110 ; in 1906 the figures were 195 vehicles, the value being £110,440 ; and in 1902 37 vehicles valued at £8,400. In 1909 there were no motor cars registered in St. Petersburg, but in 1910 there were 1,056, and last year 1,479. In Moscow the numbers have grown from 264 in 1909 and 518 in 1910 to 826 last year.

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NEW COMPANIES REGISTERED.

Private Companies.

A. Fitch and Son (Clacton), Ltd.—Capital £1,000, in £1 shares. Acquiring business carried on at 10, Rosemary Road, Clacton-on-Sea.

Lomax, Ltd.—Capital £2,000, in £1 shares. Acquiring the business of the Lomax Tyre Co. carried on by A. E. Lucas and C. H. May in partnership at William Street, Birmingham.

London Improved Motor Coach Builders, Ltd., 149, Lupus Street, Westminster.—Capital £20,000, in £1 shares (10,000 6 cent. cum. pref.). Acquiring the business of the Thames Bank Wharf Motor Works, Ltd.

Motor Owners' Petrol Combine, Ltd., 170, Piccadilly, W.—Capital £7, in £1 shares.

New Motor Fuel Development Synd., Ltd.—Capital £15,000, in £1 shares (7,500 pref. ordinary).

Perry Motor Co., Ltd.—Capital £60,000, in £1 shares (50,000 preferred ordinary and 10,000 deferred ordinary). First directors, J. M. Smith, E. S. Perry, A. E. Wiley, O. A. Smith, C. J. Hampton, and J. W. Bayliss.

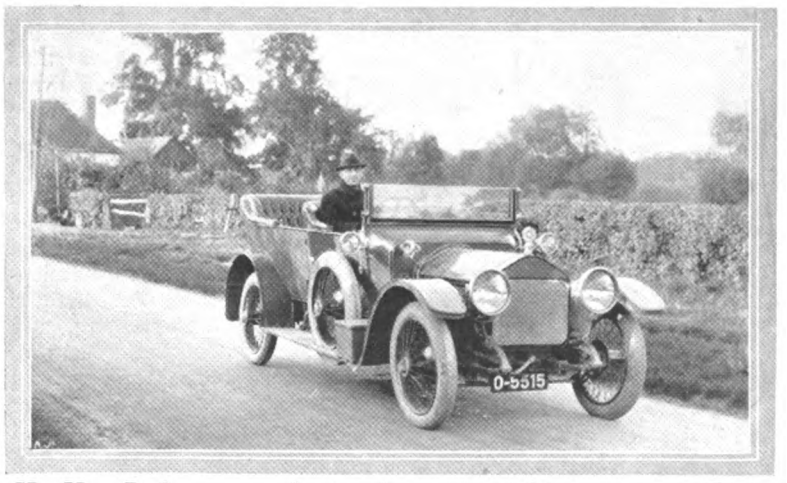
Stewart Precision Carburettor Co. (Germany), Ltd.—Capital £10,000, in £1 shares (4,000 pref.).

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PUBLICATIONS RECEIVED.

The Roadfaring Guides. No. 1 : *Road Touring in Southern England.* By Reginald Wellbye. London : E. J. Larby, 1, Paternoster Avenue. Price 1s. 6d. net.

"*A Wolseley in the Making.*" Birmingham : The Wolseley Tool and Motor Car Co., Ltd.



Mr. Max R. Lawrence, who has just resigned his position as Works Manager to the Wolseley Motor Co. to take over the Wolseley Co.'s depôt at 76, Deansgate, and Repairs Department at Atkinson Street, Manchester.

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ROUNDABOUT NOTES.

DURING his eight years' connection with the Wolseley Co., first at Crayford and latterly as works manager at Adderly Park, Mr. Max R. Lawrence has made for himself many friends in the trade, and they will be interested to hear that he is now able to gratify his long-standing wish to be engaged in the selling side of the business. He is taking over the Wolseley Tool and Motor Car Co. depôt at 76, Deansgate, Manchester, and the repairs department at Atkinson Street. Mr. Lawrence takes with him the Company's very best wishes for his future success, and Wolseley owners in the Manchester district look to him with confidence to serve them well.

THE San Sebastian Rallye was not without its tragedy. Mr. Gericke, the chairman of the Spyker Co., was driving a 20-h.p. Spyker car in the Rallye, when he was suddenly taken ill, and expired at Perigueux. The car was a 1913 model which had just returned from Budapest *via* Vienna in thirteen days.

AN arrangement has been come to between Messrs. H. M. Hobson, Ltd., and Messrs. Rover, whereby the former have been appointed the authorised agents for Rover cars in London and the district. The staff both at 16, Pall Mall and at Vauxhall Bridge Road will be entirely at the disposal of prospective buyers, and any information or arrangements for trial runs can be made at either depôt.

ALL three models of the Argyll cars for next year will be fitted with detachable wheels, wooden wheels in the case of the 12-18-h.p. and wire wheels on the 15-30 and the 25-50-h.p. cars, which will also have the Argyll single sleeve-valve engines. The sectional model of this engine will be on the firm's stand at Olympia.

ALREADY the Mathis cars have built up a splendid reputation for themselves amongst English motorists, and no doubt many who have not become intimately acquainted with the car will be interested to hear that the English firm have just published a catalogue which gives full and complete details of the various models marketed. The catalogue, also, is well illustrated by a very large number of photographs illustrating the various parts of the car, together with some views of the works and of the cars in active service. A copy of the catalogue can be obtained by any reader of the AUTO. from Mathis Motors, Ltd., 36, Long Acre, London, W.C.

OWING to the great increase in their business, Messrs. Godfrey and Applebee, Ltd., have taken further premises, and have arranged to conduct the two establishments under separate and distinct titles. The new premises are at 87, Great Portland Street, where, under the title of Godfrey and Applebee, Ltd., Mr. F. A. Applebee, the managing-director, conducts the Scott agency. Their old place, at 208, Great Portland Street, known now as Godfrey's, Ltd., will continue under the management of Mr. O. C. Godfrey, who, as managing-director, will conduct all business relating to Indian motor cycles and other makes of well-known and reliable machines.

MESSRS. GEORGE SPENCER MOULTON AND CO., LTD., have now issued their revised price list, showing the further decreases which have been made during the past month. This price list will continue in force quite regardless of any increased prices adopted by competitive tyre manufacturers. The firm has also issued a little booklet, entitled "What Others Say," in which a few actual users give their experiences of these tyres.

ANOTHER very interesting publication to hand from the Spencer Moulton Co., 79, Cannon Street, London, E.C., deals with the Spencer Moulton removable flange rim. This is gradually receiving more and more attention amongst motorists who recognise that by its means tyres and tubes may be easily removed and replaced without any damage to the tyres. Another advantage is that no security bolts are required. The firm will be glad to send a copy of the pamphlet to any of our readers.

BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1912.

In the trade returns for January, 1909, for the first time, *real* annual import and export trade totals were comparable, as, prior to 1908, no record was made of cars of travellers either coming into or leaving this country, the values and numbers being simply included in the export and import figures.

NOTE.—In our issue for January 13th, 1906, we published in one table the full figures of British Exports and Imports for 1902, 1903, 1904, and 1905. Prior to 1902, motor cars were not classified separately. In the issue for January 12th, 1907, the complete figures for 1906 were published; for 1907 in January 11th, 1908; for 1908 in January 16th, 1909; for 1909 in January 15th, 1910; for 1910 in January 14th, 1911; and for 1911 in January 13th, 1912.

SEPTEMBER.	1911. September.		Nine Months ended September.		1912. September.		Nine Months ended September.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
IMPORTS.		£		£		£		£
Cars ...	451	101,858	4,927	1,286,351	257	85,601	6,218	1,478,397
Chassis ...	462	122,478	5,198	1,353,568	594	160,258	5,906	1,490,726
Parts ...	—	223,782	—	1,925,274	—	285,200	—	2,483,562
	913	448,118	10125	4,565,193	851	531,059	12124	5,452,685
Motor cycles	54	1,934	1,152	36,030	45	1,673	1,086	35,099
Parts ...	—	6,274	—	51,829	—	14,866	—	96,429
	967	456,326	11277	4,653,052	896	547,598	13210	5,584,213
EXPORTS.								
Cars ...	423	164,633	2,879	1,146,448	505	189,305	3,488	1,344,186
Chassis ...	64	23,494	497	206,172	151	50,153	840	308,908
Parts ...	—	85,174	—	773,982	—	100,667	—	879,479
	487	273,301	3,376	2,126,602	656	340,125	4,328	2,532,573
Motor cycles	676	25,487	4,471	165,273	1,425	57,352	8,789	352,668
Parts ...	—	7,092	—	48,724	—	19,046	—	125,072
	1,163	305,880	7,847	2,340,599	2,081	416,523	13117	3,010,313
FOREIGN AND COLONIAL RE-EXPORTATION.								
Cars ...	81	26,921	704	194,278	123	42,700	698	225,318
Chassis ...	44	13,329	231	71,750	80	22,500	455	126,448
Parts ...	—	15,370	—	159,890	—	17,180	—	181,201
	125	55,620	935	425,918	203	82,380	1,153	532,967
Motor cycles	9	299	71	2,648	22	939	104	4,482
Parts ...	—	1,314	—	5,351	—	1,047	—	6,494
	134	57,233	1,006	433,917	225	84,366	1,257	543,943

Note.—Total number of cars (including touring and other cars not for sale) during September, 1912—

Imports—745 (total for 1912, 9,240), value £405,250 (total for 1912, £3,446,280).

Exports—678 (total for 1912, 4,866), value £284,799 (total for 1912, £2,170,593).

Foreign and Colonial re-exports—358 (total for 1912, 1,770), value £208,965 (total for 1912, £932,516).

BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

11,573. December 12th, 1911. Improvements in Change-speed Gear, more particularly for use with Automobiles. The Austin Motor Co., Ltd., and Herbert Austin, Longbridge Works, Northfields, Birmingham.—In this invention the gear wheels of the change-speed mechanism are each one carried by a separate shaft with which it is permanently rigid, and the shafts are arranged in two sets of three or more shafts, each of which have a common axis, and the common axis of one set of shafts is parallel with the common axis of the other set. The shafts of each set, or any two shafts of each set which are adjacent to one another, may be coupled together by suitable clutches. Fig. 1 is a vertical section. Fig. 2 is a section taken approximately on line x, x, of Fig. 1. A^1, A^2, A^3 are the shafts of the primary set, and B^1, B^2, B^3, the corresponding shafts of the secondary set, this set being vertically below the primary set. a^1, a^2, a^3, are gear wheels which are rigid with the shafts, A^1, A^2, A^3, respectively, and b^1, b^2, b^3, are gear wheels which are rigid with the shafts, B^1, B^2, B^3, respectively. The wheel, a^3, is of larger diameter than the wheel, a^1, and the wheel, a^3, than the wheel, a^2. The wheels, a^1, a^2, a^3, are always fully in gear with the wheels, b^1, b^2, b^3, respectively. The

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shafts, A^1, A^2, may be coupled together by a sliding-clutch member, C. The shafts, A^2, A^3, may be coupled together by a clutch-member, C^1. The shafts, B^3, B^2, may be coupled by a clutch-member, C^2, and the shafts, B^2, B^3, may be coupled by a clutch-member, C^3. For the top speed, the drive is direct through the shafts, A^1, A^2, A^3, the shafts, B^1, B^2, and B^3, being uncoupled from one another, and running idly in their bearings. The next lower speed is from the wheel, a^2, to the wheel, b^3, and then back from the

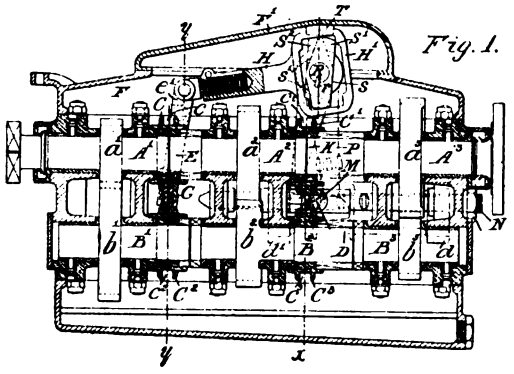


Fig. 1.

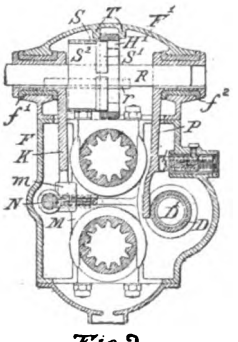


Fig 2.

wheel, b^3, to the wheel, a^3, the shaft, B^1, running idly in its bearings. For the next lower speed the drive is from the wheel, a^1, to the wheel, b^1, and back from the wheel, b^2, to the wheel, a^2, and thence through the shaft, A^3, the shaft, B^3, running idly in its bearings. For the next or lowest speed the drive is from the wheel, a^1, to the wheel, b^1, and back from the wheel, b^3, to the wheel, a^3, the shaft, A^2, simply running idly in its bearings. The reverse shaft is formed as a sleeve, D, which is slidable on a horizontal-bar, D^1, having its axis parallel with the axis of the two sets of change-speed shafts. Rigid with the shaft, D, are gear-wheels, d and d^1, which, when the shaft is on one extreme position endways, as shown by broken lines (Fig. 1), are out of gear with any of the wheels of the change-speed mechanism, but which, when the shaft is moved into its other extreme position, the reverse drive is from the wheel, a^1, to the wheel, b^1, from the wheel, b^2, to the wheel, d^1, and from the wheel, d, to the wheel, a^3. The clutches, C, C^2, are operated simultaneously through the lever, E, which is pivoted within bearings, the lower ends of the sides of the lever being formed with open slots which engage with studs of a plate, G, which fits within, and passes partially around grooves, c, c^2, of the clutches. The link, H, is connected by the extension, e^1, of the lever. The clutches, C^1, C^3, are operated simultaneously by a lever, K, pivoted on a bearing, f^1, and engages at its lower end within a box, m, of a plate, M, which fits within, and passes partially around grooves, c^1, c^3, of the clutches, and is guided along a guide bar, N. The reverse shaft is operated by a lever, P, pivoted in a bearing, f^2, at the opposite side of the gear-box to that at which the bearing, f^1, is situated, and engages at its lower end with a groove of the shaft. A shaft, R, passes slidably through the lever, K, and the lever, P, and through the bridle, H^1. A feather key, r, within the shaft, R, is engaged at will, either with a groove of the lever, K, or with a groove of the lever, P, by moving it endways. Fixed upon the shaft, R, is a block, S, divided into two widths, S^1 and S^2, each of which forms a rocker capable of being entered, as the shaft, R, is moved endways in the required direction into the bridle, H^1, one or other of these rockers always being within the bridle and supporting it. The upper end of the bridle is always between a pair of lugs, T, which project downwards from the cover, F^1. The rocker, S^1, is shown as partially within the bridle, H^1.—September 18th, 1912.

18,048. August 9th, 1911. Improvements in and relating to Detachable Wheels. J. V. Pugh, Guiting House, Allesley, Coventry.—This invention relates to detachable vehicle wheels of the type in which an outer detachable hub portion is mounted on an inner permanent hub (*i.e.*, so that the two parts revolve as one), and is held thereon by means of a nut. The object of the invention is to render the secure locking of the nut which holds the outer upon the inner hub independent of the action of the ratchets. If the two parts are kept in contact at one point and out of contact at the diametrically opposite point, and either of the two parts be revolved, under conditions which do not involve slip, then the other part will revolve also, and the speeds of revolution of the two parts will be proportional inversely to the relative lengths of the circumferences, the inner part revolving faster than the outer part. The invention consists of applying this principle to detachable vehicle wheels so as

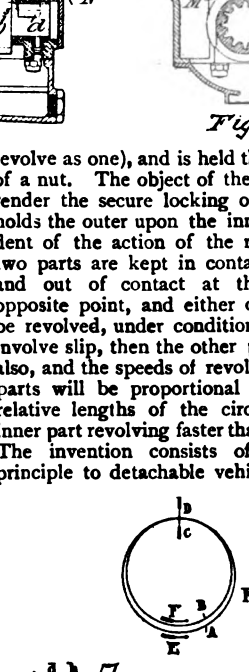


Fig. 1.

Fig. 3.

to retain the outer hub upon the inner hub in virtue of the rotative effect of the contact of each of the hub parts with the nut or screw. Fig. 1 is a diagram illustrating the principle upon which the invention is based. Fig. 3 is a section of the hub. In Fig. 1, the circles, A—B, represent the cross-section of the two solids of revolution fitting the one within the other, the necessary clearance being exaggerated. If these two bodies are pressed together in a vertical direction as indicated by the arrows, C—D, and the one, A, is revolved in the direction of the arrow, E, then the other, B, will be driven by it and will revolve as indicated by the arrow, F, but at a higher speed of revolution in the ratio of the diameter, A, to the diameter, B. In Fig. 3, an outer hub, a, is mounted upon an inner hub, b, the inside end of the outer hub abutting against a coned or tampered abutment on the inner hub part. The outside end of the inner hub is made to project beyond the end of the outer hub and is provided with an externally facing screw-thread, c. The external surface, d, of the end of the outer hub is made of conical form, the smaller diameter being at the outside edge. The nut, e, screws upon the thread, c, provided on the inner hub, and has an annular V-shaped groove, g, in its inside face, one surface of which encircles and bears upon the the coned surface, d, of the end of the outer hub, while the surface, i, is so arranged that it cannot come in contact with the surface, h. The contact between the inner hub and the nut will have the tendency to make the latter rotate at a slower speed than the former, and there will also be, due to the contact between the nut and the outer part, a tendency for the former to revolve at a slower speed than the latter. The inner and outer hub being rotationally locked together by the before-mentioned means, and the tendency to relative movement of the nut with regard to both of them being in the same direction, it will be clear that by suitably arranging the hand of the thread employed, the nut may be caused constantly to screw up or on to the inner hub.—September 18th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published October 10th, 1912.

13,520. J. J. ROWE. Combined I.C. engines and variable gears.
14,470. SIEMENS SCHUCKERTWERKE GES. Two-stroke-cycle I.C. pumps.
19,297. W. DANIČEK, C. CERNOVSKY AND A. HOFFMANN. Ignition.
20,335. H. W. FELLOWS. Variable-speed gearing.
20,481. M. D. RUCKER. Elastic tyres.
20,500. L. BIEHLER. Starting clutches.
20,994. M. D. RUCKER. Elastic tyres.
21,228. A. G. GRICE AND G. W. K., LTD. Motor vehicles.
25,682. T. LAFITTE. Valve gear.
27,048. J. WALKER. Motors.
27,452. M. J. M. GAUBERT. Valve gear.

Applied for in 1912.

Published September 26th, 1912.

1,088. L. T. C. TURCAT. Carburettor.
1,395. W. HEVER. Magneto-electric ignition.
4,321. H. KELLY. Detachable rims.
4,564. J. P. SINSON. Shock-deadening devices.
6,067. C. A. JUMELLE. Valve-mechanism.
6,288. G. KRYN. Rear axle.
6,634. FRIED. KRUPP AKT.-GES. GERMANIAWERFT. Two-stroke cycle I.C. engines.
12,948. SOC. NOUVELLE DE LA BUIRE AUTO. Brakes.
13,312. H. BUCHANAN. Spring wheels.

Published October 3rd, 1912.

715. J. KNIGHT. Tyre protectors and non-skids.
4,747. B. L. LAWTON. Shock absorbers.
4,911. E. J. CONILL. Rotary engines.
8,900. E. H. NACKE. Change-speed gear.
9,192. R. HEVL AND GES. FUR AUTO. RENOVIERUNGEN. Starting devices.
10,131. E. G. OWEN. Friction-driving mechanism.
10,318. J. JOFEH AND F. E. MOODY. Motor vehicles.
13,688. A. H. OTT, H. FANTA, AND A. OTT. Ignition.
13,798. W. H. LANNING. Clutches.

Published October 10th, 1912.

80. C. BEAVEN. Spring wheel.
1,475 A. FONO. Friction-planet gear.
2,290. F. F. ENO. Resilient tyres.
2,783. SOC. DES MOTEURS GNOME. Motors.
3,130. A. CLÉRET. Elastic tyres.
7,714. G. A. BRAUER. Two-stroke-cycle I.C. engines.
8,407. W. WUNDERLI. Wheels.
11,473. N. GRATZ. Resilient wheels.
12,161. M. FISCHER. I.C. m. with slide-valve action.
13,058. J. J. ALLISON AND O. H. SKINNER. Starting I.C. m.
13,757. G. SILVESTRI. Inlet valves.
16,087. A. R. BANNISTER AND T. G. JOHNS. Variable-speed gear.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 615. (No. 42, Vol. XVII.) | OCTOBER 19, 1912. | [Weekly, Price 3d. Post Free, 3½d.



MAKING THE PACE.—Mawdesley Brooke's 120-h.p. "Baby VI," the winner at the Burnham-on-Crouch Motor Boat Meeting for boats not exceeding 40 ft.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

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All communications must be addressed to the Manager.

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Passing Events

The Taxation of Old Cars.

It will be good news to the owners of obsolescent cars that the R.A.C. intends to exert its influence with the Treasury in order to secure for them some relief from the full incidence of the present motor taxation. In the current "Report of the Week" it is noted that one of the main criticisms levelled at those responsible for the production of the report recently issued by the Treasury Committee on the horse-power rating of motor cars has had reference to the absence in that document of any mention of a revised scale of rating in the case of old cars. The "Report" then goes on to say that it should be clearly understood that the terms of reference to the Treasury Committee were not considered sufficiently wide to embrace that subject, and for this reason it was not discussed. This is hardly correct, for the subject was certainly discussed by the Committee, for that body rather went out of its way to show in its report that the question had been considered, and to give its reasons for not making any recommendation. True, it was stated in the report that the terms of reference were not thought to embrace the subject, but that, nevertheless, the Committee had considered it in all its bearings. This, however, is more or less by the way.

Most decidedly we think that owners of cars over four years old have a very good case for relief, and it is therefore possible that when their case has been presented by the Club the desired relief will be forthcoming, though in any of these matters affecting taxation we should not be inclined to build too much upon the tender mercies of a taxing authority. On the face of things it might be thought that the present basis of assessment does not bear with any particular hardship on those who have on their hands cars of a type which is approaching the obsolete. After all, it might be argued, the tax is only a matter of six or eight guineas a year, and that is a mere fraction of the total cost of motoring. Unfortunately, however, the matter goes deeper than that. As the Club "Report" points out, these old cars are usually hopelessly extravagant in their fuel consumption, and thus they pay, as it were, twice over. Then, take the case of the nominal "thirty" of four years ago. The tax will be in the neighbourhood of ten guineas, while the efficiency of the car will probably be no more than 50 per cent. of that of a modern "fifteen-point-nine," which gets off for three. Necessarily, therefore, the selling value of the old car is depreciated enormously—in fact, the car is practically unsaleable, and in many cases rather than pay at both ends its owner lays it up, and thus the revenue actually suffers loss. If, however, taxation were on a sliding scale based on the age of the car, the vehicle would be in commission and paying taxation on its petrol bill as well as the excise tax. Apart, however, from the revenue aspect of the question, it is a matter of simple justice that the consideration asked should be extended, and we congratulate the Club on the move it is making in this direction.

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The Age Limit for Driving Licences.

The National Cyclists Union has been at pains to ask the R.A.C. to agree to a proposition that the law should be altered so that the age minimum for driving licences should be raised, and that in no case should a driver's licence be issued to a minor unless the parent or guardian of the licensee is held liable at law for any damage caused by his child or ward during minority and whilst driving a motor cycle. Apparently, the N.C.U. is satisfied with the minimum of seventeen imposed upon applicants for licences to drive motor cars, but thinks that fourteen is too tender an age for the holder of a motor cycle licence. In the ordinary course of procedure the Club referred

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the matter to the A.C.U., the body to which it has delegated the control of motor-cycling matters, and in reply the Union states, as reported in last week's issue of the AUTO., that its committee is of opinion that the parent or guardian of a licensee being a minor, should be held liable at law for any damage caused by the said minor while driving a motor cycle. At the same time, the Union is not of opinion that there is any necessity for the age minimum to be raised, as it considers that if the first recommendation became law it would follow that parents or guardians would prevent their children or wards from obtaining licences unless they were satisfied of their reasonable competency to drive.

Apparently, the N.C.U. is not concerned with the liability of minors who may cause accident or damage while riding pedal cycles, for we find no reference to them in the correspondence. But unless the question is to be dealt with as a whole, we submit that there is neither sense nor reason in touching the subject at all. Doubtless the N.C.U. would argue that the motor cycle is a dangerous machine in itself when compared with the pedal-propelled machine. Even if that be conceded, we still think that the A.C.U. has been a little unwise in acceding to the principle of differentiating between one class of vehicle and another. Let us hasten to say that we entirely approve the principle of making the parent or guardian liable for damages caused by a minor's carelessness or reckless behaviour, so long as that principle is applied all round and not to a particular class only. Why, for example, should the minor who, driving a dog-cart, knocks down and severely injures a person, escape all civil liability in the person of himself or his parent or guardian, while liability shall attach if the vehicle happens to be petrol propelled instead of horse drawn? Or how does the N.C.U. justify itself in asking that that liability shall be imposed in the case of the A.C.U. member and not in that of its own, simply because the latter propels his machine by his own muscular effort? As we say, the principle is a good one enough, but unless it is made to apply all round we certainly cannot give it our support. We already have quite enough differential treatment of the motorist, and it is time that others were made to feel that they have obligations towards the public, a breach of which must entail a certain penalty.

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From Within the Fold!

We confess we were somewhat astonished when we read of the recommendation of the Bradford A.C. to the R.A.C., to the effect that it is desirable that in future legislation relating to motor cars there shall be some provision whereby driving licences shall only be granted to persons who are not subject to any physical infirmity, and who shall have passed a test of proficiency in driving. Fortunately, as we think, the Club has not seen its way to take action on the lines advocated by the Bradford A.C.

If the recommendation means anything at all, it means the institution of both medical and proficiency examinations for the motorist—proposals against which we have argued many times during the past few months. Our reasons have been repeated so often that by this time they must be perfectly familiar to our readers and, as no effective counter to them has ever been advanced we must conclude that they are good reasons. There is just one point which we should like to make again and that is the very one we have advanced in the preceding note on the N.C.U. age-limit proposition. Why single out one form of traffic for all this differential treatment? If medical and proficiency certificates are necessary in the case of the motorist, then surely the reckless butcher boy should be required to hold certificates of his fitness to be trusted loose on the highways in charge of his horse and cart. We cannot help recording our conviction that associations like the Bradford A.C., who pass resolutions such as that upon which we are commenting are unwittingly helping the case of the opponents of motoring. Much has been written in the columns of the daily Press on this subject of driving examinations, and it requires all the logic of the motorist to drive it home to the opposition that such examinations must of necessity fail in their avowed object of making the road safer, what time they inflict a fresh vexation on the already over-vexed motorist. But when even our own representative clubs join forces with the opposition it is time to call a halt.

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The L.C.C. and Traffic Control.

When the L.C.C. once more gets to work after its summer recess it will have before it a motion, in the name of Sir John Benn, to the effect:—

"That the Council do forthwith instruct the Highways and Parliamentary Committees to formulate and submit legislative proposals which will secure for the local representative authorities in London and Greater London the control of street traffic corresponding to the control possessed by the City of London and by municipalities in England, including powers to determine what roads or thoroughfares shall be preserved for private residence."

This is the sort of thing that, in our judgment, must be opposed by any and every means. We are by no means against the institution of a central authority with plenary powers of control over the Metropolitan traffic. As a matter of fact, we have been advocating it for years past as something that is becoming increasingly necessary every year. As the traffic of London grows so does the congestion and chaos get worse, until even now we have arrived at a stage when the want of proper control by an authority vested with adequate powers is one of the most glaring inconsistencies of London's municipal life. But that authority must, under no circumstances, be a body like the L.C.C., which is tied to a certain line of policy because of its own vested business interests. We doubt if even Sir John Benn himself would admit freely and openly the real object of his motion, which is not to gain control of the traffic simply because in his judgment and that of those who agree with him that traffic requires control in the wider interests of the community, but because it would place in the hands of the L.C.C. the most powerful possible weapon for competing with a form of traction which is causing the gravest disquietude to the

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L.C.C. tramways party. If only, they argue, they can get Parliament to see things with their eyes and concede to them the powers for which they ask, then at last they can sweep the opposition from the streets and the unfortunate tramway enterprise may have a sporting chance of paying its way.

That is the beginning and end of the whole thing, but it will not do to place in the hands of the one shopkeeper the power of dictating to another how and in what manner he shall conduct his business, or where he may or may not open a competing shop. By all means a London Traffic Authority, but not the L.C.C.

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Heaving the Half-Brick!

At this late stage in the history of development of the motor vehicle, it might have been thought that public authorities at least would regard it and its progress with a reasonable eye. Time was when every ill under the sun, from English summers (!) to whooping cough was traced back to the malign influence of the motor car, but those days we had thought had passed in favour of a more tolerant era, and one in which the many benefits which motor traction has brought to the community was recognised. Apparently, the car still has a lot to be laid to its debit. Few weeks pass but what we have to comment upon some fresh instance of the unreason with which a certain class regards what is now an established mode of traction and a firm-rooted industry. Most of the adverse criticism of the motor is, we take it, due principally to a want of the sense of proper proportion on the part of the critics. For example, we find in a recently issued official return dealing with the proceedings of the distress committees in England and Wales the extraordinary statement that one of the chief causes of unemployment is the growing substitution of motor for vehicular traffic, many carmen and horsekeepers being thus thrown out of employment. We have described this bald official statement as being an extraordinary one, and, we think, with considerable justification. It is the more extraordinary in that it is not a haphazard statement made by an irresponsible person, but an apparently reasoned one put forward with all the weight of authority. One most important factor, however, is ignored entirely—apparently the authority responsible for the compilation of the return had never heard of it—and that is the law of industrial compensation, which has a most important bearing upon the subject under discussion. Here we have an allegation that the motor car is one of the chief causes of unemployment, because, forsooth, it has led to the discharge from their calling of certain carmen and horsekeepers. But the authority concerned does not take the trouble to point out that the unemployment caused on the one hand is much more than compensated by the increased employment offered to the industrial community on another. It would cover far too much ground to fit in with the limitations of our space if we were to go into every particular of how and why the growth of motor traction exercises a beneficial effect upon the labour market as a whole, so we will content ourselves with taking the one or two essential points. The grievance seems to be that unemployment is caused among those actually engaged in the work of road traction as opposed to those whose employment lies in and about those trades engaged in the production of the vehicle itself. Now, supposing we eliminate the latter class of employee altogether—though he is very germane to the main argument which turns about the question of unemployment generally—and confine ourselves to a cursory examination of the effect of motor traction on the carman and horsekeeper class. Admittedly, for every horsed vehicle thrown out of commission a driver loses his employment, unless he happens to have made himself competent to drive the motor vehicle which is the cause of his unemployment. But in his place must be employed a substitute, so that on the face of it things balance. That, however, is not quite a fair way to look at the matter, because manifestly the motor vehicle is capable of doing far more work than the antiquated conveyance it has replaced. Suppose we assume that it does the work of three horsed vehicles, that will mean that three men are thrown out of employment to begin with. The motor vehicle will employ a driver and an assistant, leaving one man who has lost his work. But then we can take it that at least one skilled workman per vehicle will be found employment in the garage as against one horsekeeper for six horsed vehicles, so that actually we have a balance in favour of the motor. Another aspect of the question is that the motor vehicle is bringing the roads into use again, and that the tonnage of goods carried by road is increasing by leaps and bounds, which all means increased employment. Possibly it might be argued that as motor traction increases in volume so the railways will be hit and there will be less employment there. But it must always be remembered that the trade of a country increases in direct ratio to the facilities for distribution, and that here again we have a compensating factor to balance matters for us. The subject is an exceedingly fascinating one and one which is capable of almost indefinite discussion, but we must needs leave it in the meantime.

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Motor 'Buses in Parliament.

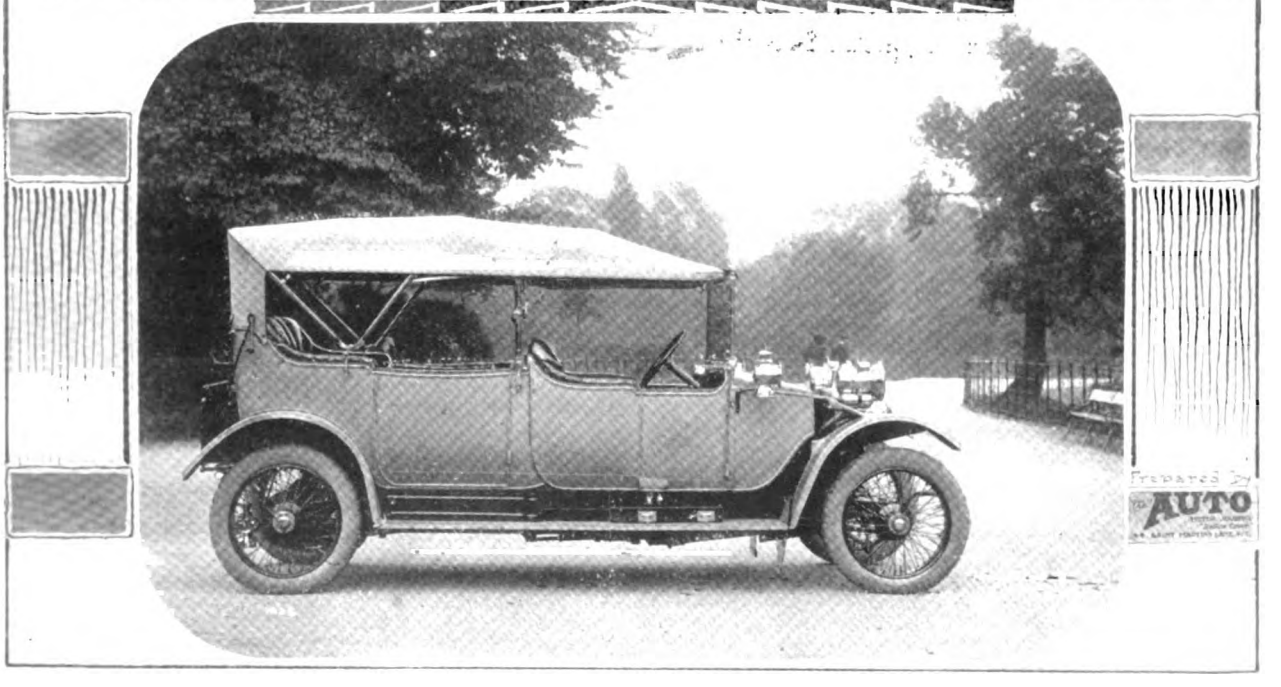
In reply to a series of questions in the House of Commons last week, Mr. McKenna said he was informed by the Commissioner of Police that 118 persons were killed by motor 'buses from January 1st to the middle of October, and during the nine months ended September 30th the number of licences issued was 1,949. He was informed, however, that many of the licences issued during the end of last year and the early part of 1912 were in respect of vehicles of an old type which had since been permanently withdrawn. Mr. McKenna further said that he had seen the resolutions passed by borough councils and other public bodies in London, and so far as it affected the public safety it was engaging his attention. He would confer with the Commissioner of Police as to whether any further action by the police is possible; but it must be remembered that neither the Commissioner nor the Home Office had any power to control the omnibus routes or to deal with questions of damage.

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With the Camera and the Car.



THE CAMELS' RIVAL — a 28 H.P. LANCHESTER in THE ALGERIAN DESERT.



Mr. S. R. Kearne gives his cars a very strenuous testing in his travels abroad in addition to extensive home work. In our photograph above Mr. Kearne's 28-h.p. Lanchester car is seen in the Algerian desert under ordinary touring conditions, and below is his latest acquisition, an extremely smart 38-h.p. 6-cyl. torpedo phaeton Lanchester.

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MOTOR CYCLE RACING AT BROOKLANDS.

FINE WEATHER, HIGH SPEEDS, AND MANY NEW RECORDS.

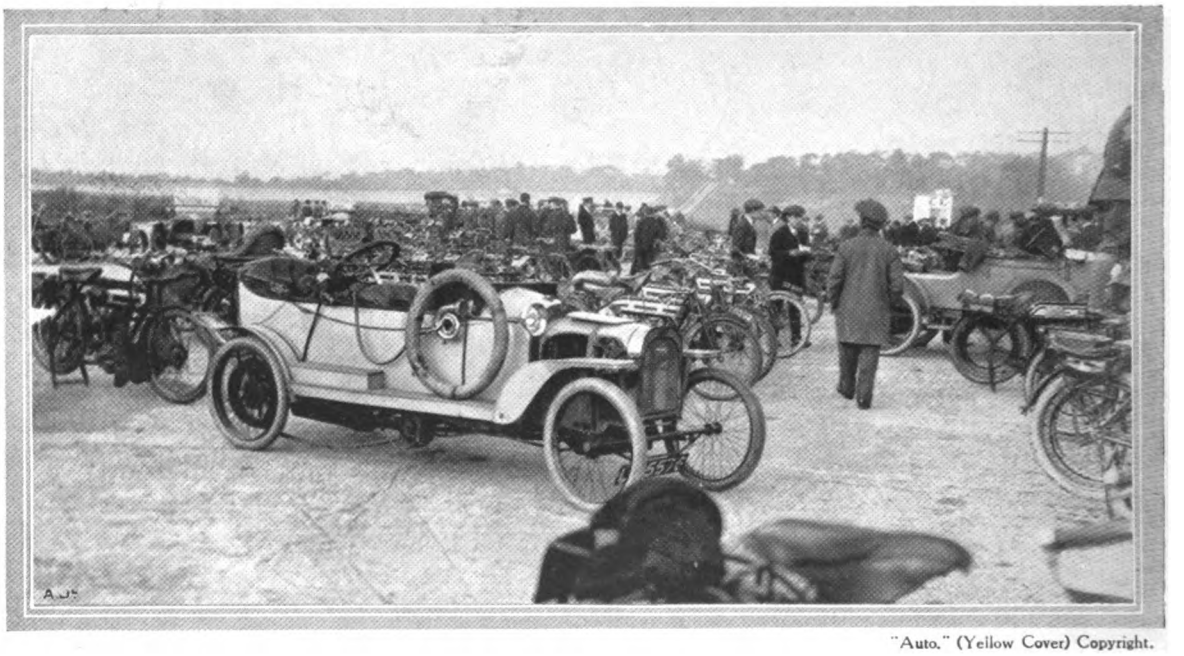


"Auto." (Yellow Cover) Copyright.

Competitors at the start for the Junior One-Hour A.C.U. Championship Race at Brooklands on Saturday, and inset is G. E. Stanley, the winner, on his Singer machine, he thereby securing the AUTO. Challenge Cup.

WHILE Londoners were vainly endeavouring to clear their throats, and were assiduously rubbing the fog out of their eyes last Saturday, the Brooklands track was bathed in brilliant sunshine, so that the members of the British Motor Cycle Racing Club and the Auto-Cycle Union, with their numerous friends, once they got there, were able to enjoy a fine day's sport.

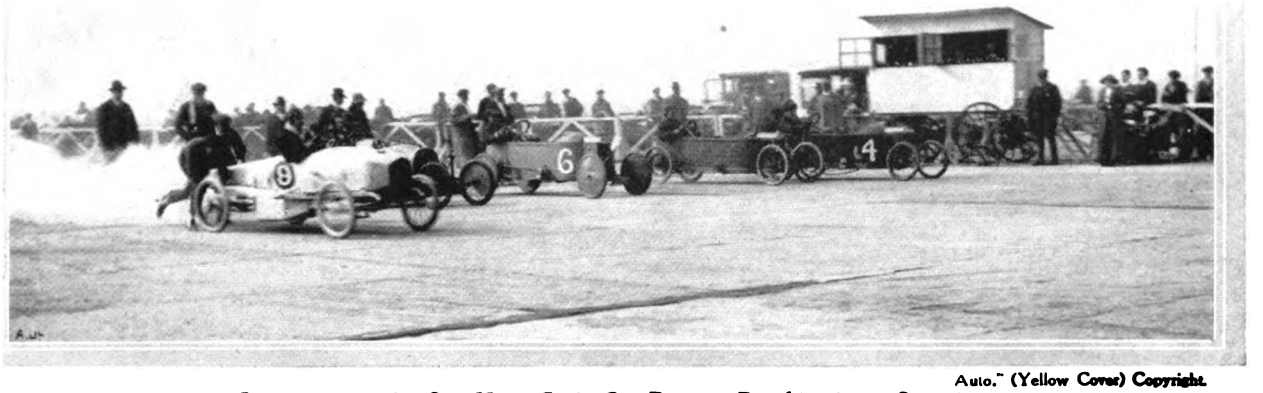
The Fourth 1912 Time Trials, which formed the first item of the programme, and were timed to start at 10 a.m., had attracted well over 60 entries, but unfortunately



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Visitors' motor cycles and small cars in the enclosure at the fork at Brooklands Race Meeting on Saturday under the auspices of the British Motor Cycle Racing Club.

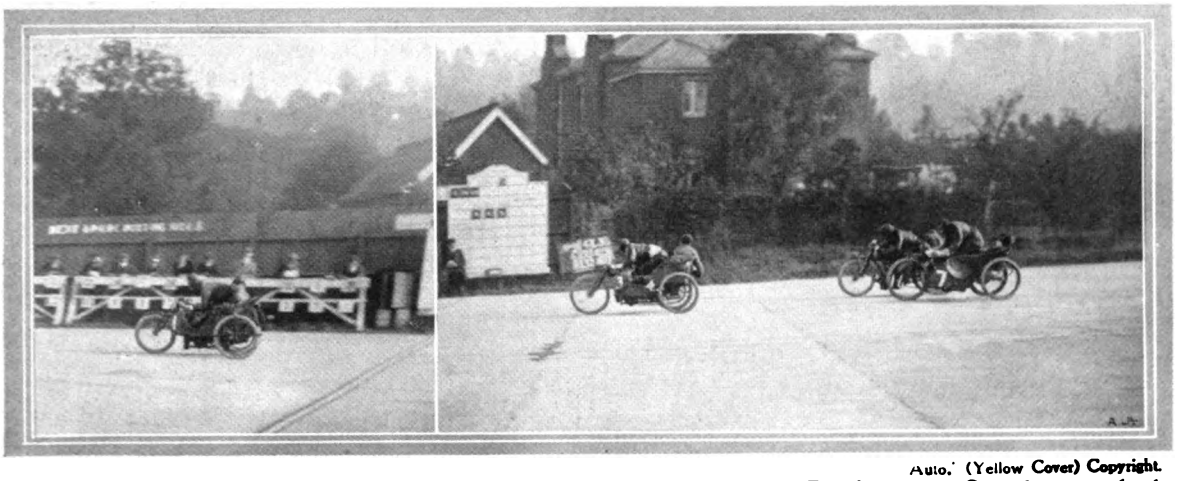
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Just away in the One-Hour Cycle Car Race at Brooklands on Saturday.

they had to be abandoned as, although the weather was fine throughout the day, there was sufficient mist on the ground to make it impossible to see more than a short distance, so that accurate timing would have been impossible. As soon as the mist had sufficiently cleared away a start was therefore made with event No. 2, the One-Hour Cycle-car Race, which resulted in an easy victory for Mr. J. T. Wood on a G.W.K. cycle-car who,



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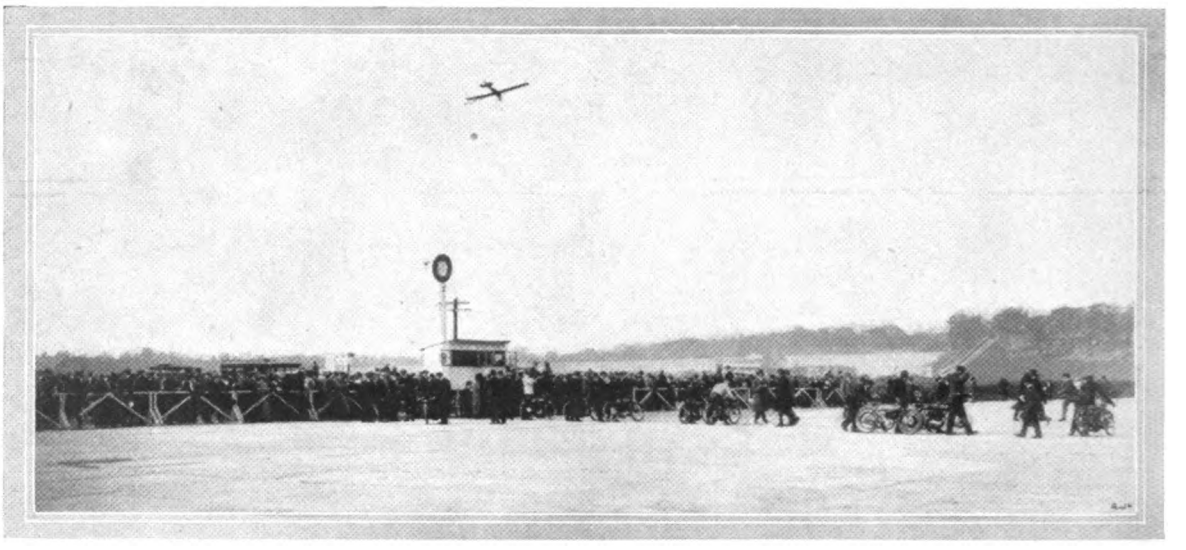
F. W. Barnes, on his Zenith, the winner of the One-Hour Side-Car Race at Brooklands on Saturday, on the last lap. On the right a trio—Messrs. E. B. Ware (Zenith), F. A. Applebee (Indian), and S. T. Tessier (Bat-Jap), who kept bunched together for nearly the whole race.



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Getting away for the Side-Car Race at Brooklands on Saturday.

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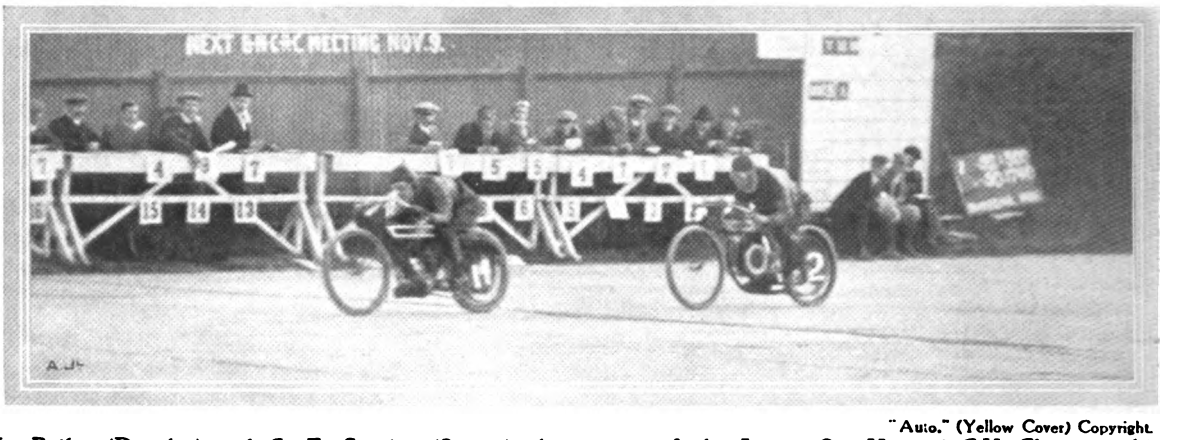
Lining up for the Five-Lap A.C.U. Championship at Brooklands on Saturday. Flying above is the Vickers monoplane.



An incident in the One-Hour Cycle Car Race at Brooklands on Saturday.—I. T. Wood, the winner, in the white scarf, anxiously watching his opponents rounding the track whilst having a new tyre fitted to his G.W.K. car.

although experiencing considerable tyre trouble covered no less than 47 miles 30 yards in the 60 minutes. The One-Hour Side-car Race, which followed, produced a splendid contest, and no less than four class records were broken. The details of this race will be seen in the tabulated results set out at the end of these notes, but we cannot refrain from remarking on the splendid performances of F. W. Barnes on a twin-cylinder Zenith, the winner, and S. F. Garrett, who ran third on a single-cylinder Regal Precision.

No records were beaten in the race for the Junior A.C.U. Championship, in which G. E. Stanley rode his single-cylinder Singer to victory, travelling 55 miles 1,260 yards in the hour, and thus won the AUTO. Challenge Cup. Two features in particular considerably increased the value of this victory, viz., Stanley's machine, with one single exception, was by far the smallest engine that competed, and although it ran magnificently and without a hitch for the whole hour, Stanley was rather fortunate in crossing the line a winner; he actually ran



"Auto." (Yellow Cover) Copyright.

S. L. Bailey (Douglas) and G. E. Stanley (Singer), the winner of the Junior One-Hour A.C.U. Championship at Brooklands on Saturday, running neck and neck, in which position they remained for a considerable number of laps.

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out of petrol a few hundred yards from the finishing line, and only managed to coax his machine to a finish by tilting and jerking it about so that the very last drop of fuel was shaken out of the corners of its tank.

From a spectacular point of view the Five-Laps A.C.U. Championship Race, in which the old crack, C. R. Collier, scored a popular victory on his twin-cylinder Matchless at an average speed of 74·65 m.p.h., was the best event of the day. The winner's pace was so terrific that he actually crossed the line at the moment when such experienced riders, as Harry Bashall, on a twin-cylinder Zenith machine, were entering on their fifth lap. Mr. C. Jamieson, on a twin-cylinder Jamieson-Jap, was rather unfortunate. He came to the start with but one exhaust pipe, having lost the other half owing to a broken flange, and he was, in consequence, prevented from starting with the others. However, he was able to effect a lightning repair and actually started about 28 secs. after the field. His machine was running so splendidly that in spite of this handicap he had worked his way up into fourth place after the second lap, and he maintained this position for the remainder of the race. The last event of the day—the race for the Senior A.C.U. Championship—produced an enormous field and resulted in a well-deserved and popular win for Mr. J. L. E. Emerson, who on his single-cylinder Norton machine managed to crowd 62 miles 1,289 yards into the hour. The finish of this race was extremely exciting, and formed a fitting climax to a fine day's racing, because there were only 20 yards between the second, third and fourth, C. R. Collier on his Matchless being second with 60 miles 1,660 yards, C. R. Martin on a Triumph third, with but 10 yards less, and O. C. Godfrey on a single-cylinder Indian fourth, a similar distance behind Martin. These three riders had been travelling close upon each other's heels for very nearly three-quarters of an hour, and the regular running of their machines was the subject of much comment. Emerson, who secured the lead in the fifth lap, had to fight hard to maintain it. Stanley, on the Singer, was hotly pursuing him, and the pair of them travelled together for 23 mins., when Stanley had to stop to replace a valve. He was off again very quickly, but valve trouble once more overtook him and forced him to retire soon afterwards. Emerson in the meantime also met with misfortune. First, the filler cap of his oil tank blew off and hit him on the forehead just above the right eye, so that he was compelled to stop after 47 mins. running; but he later got away again smartly, so that he was able to retain the lead. When victory seemed certain his carburettor came adrift, and to complete the race he was compelled to hold it on with his hand. He actually travelled very nearly four complete laps, at well over 60 m.p.h., with the carburettor pressed on to the induction-pipe merely by means of his right hand—truly a marvellous performance, and well deserving of success.

RESULTS.

One-Hour Cycle Car Race.—1st prize, the Club's gold medal; 2nd prize, the Club's silver medal; 3rd prize, the Club's bronze medal; and certificates on request to all those completing the race.

	Name.	Machine.	No. of Cyls.	Bore and Stroke.	Capacity.	Distance.
				mm.	cc.	miles yds.
1	J. T. Wood ...	G.W.K. ...	2	86 × 92	1068	47 30
2	Robert Bourbeau	Bedelia ...	2	80 × 100	1008	39 1,296
3	Cyril G. Pullin...	Sabella ...	2	85 × 95	1080	32 1,698

One-Hour Side-Car Race.—For motor cycles not exceeding 1,000 cc. engine capacity, and fitted with a side-car carrying a passenger weighing not less than 10 stone. 1st prize, the Club's gold medal; 2nd prize, the Club's silver medal; 3rd prize, the Club's bronze medal; and certificates on request to all those finishing the race.

1	F. W. Barnes ...	Zenith	2	90 × 77·5	998	52 300*
2	W. H. Wells ...	Indian... ...	2	82·5 × 93	994	51 840
3	S. F. Garrett ...	Regal Precision	1	85 × 88	499	50 1,740*
4	F. A. Applebee	Indian... ...	2	82·5 × 93	994	48 1,734

***New Records** as below.

CLASS E.—For motor cycles of not more than 1,000 cc. engine capacity, with side-cars.

1 hour ... F. W. Barnes, on Zenith, 52 miles 300 yards; old record, 49 miles 1,283 yards.

50 miles ... F. W. Barnes, on Zenith, 57 mins. 32⅘ secs.; old record, 1 hour 18⅘ secs.

CLASS C.—For motor cycles of not more than 500 cc. engine capacity, with side-car.

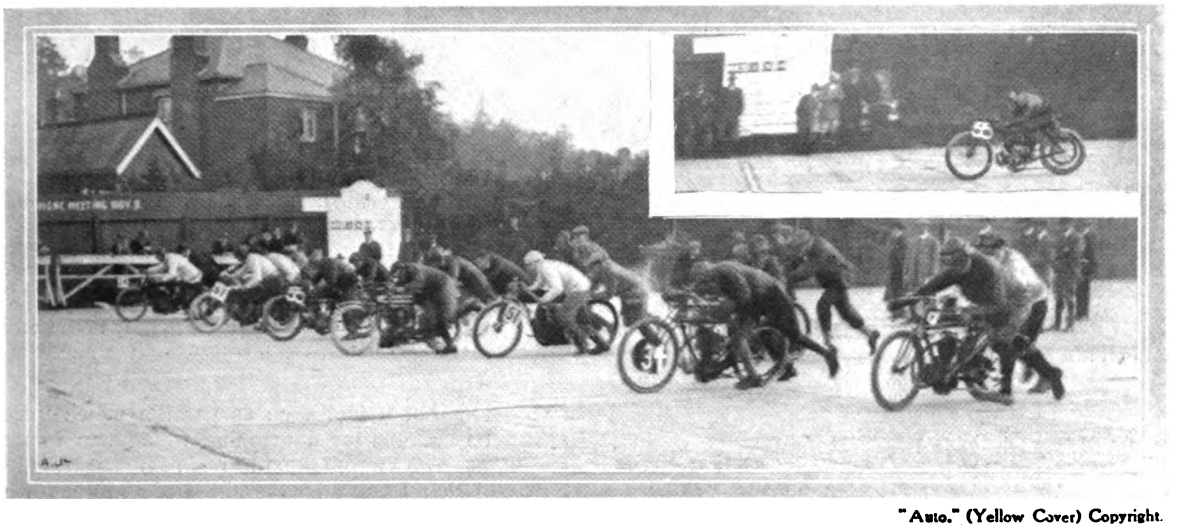
1 hour ... S. F. Garrett, on Regal Precision, 50 miles 1,740 yards.

Old record... Stanhope Spencer, on Rudge, 46 miles 587 yards.

50 miles ... S. F. Garrett, on Regal Precision, 58 mins. 45⅕ secs.

Old record... Stanhope Spencer, on Rudge, 1 hr. 10 mins. 7 secs.

Junior One-Hour A.C.U. Championship Race.—For single motor cycles with a cylinder capacity not exceeding 350 cc. 1st



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A good start for the Five-Lap A.C.U. Championship Race at Brooklands on Saturday. Inset is C. R. Collier entering the last lap, he finally winning the race.

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prize, by kind request of the Auto-Cycle Union, the AUTO. Challenge Cup (presented by the proprietors of the then AUTOMOTOR JOURNAL to the Royal Automobile Club in 1900 as a perpetual trophy) and the A.C.U. gold medal; 2nd prize, the Club's gold medal; 3rd prize, the Club's silver medal; 4th prize, the Club's bronze medal.

1	G. E. Stanley ...	Singer ...	...	1	69 × 80	299	55	1,260
2	H. V. Colver ...	Enfield	...	2	54 × 76	348	53	10
3	E. Kickham ...	Douglas	..	2	60·5 × 60	350	52	1,390
4	E. Newsome ..	Douglas	...	2	60·5 × 60	350	50	36
5	H. Bashall	Douglas	...	2	60·5 × 60	350	49	85

Five-Laps A.C.U. Championship Race.—For motor cycles with not more than 1,000 cc.

						Time.
						m. s.
1	C. R. Collier ...	Matchless ...	2	90 × 78·4	999	10 55⅘
2	O. C. Godfrey ...	Indian	2	82·5 × 93	994	11 45⅕
3	H. Hunter ...	Zenith	2	90 × 58	738	12 40⅘

Winner's speed 74·65 m.p.h.

Senior One-Hour A.C.U. Championship Race.—For single motor cycles with a cylinder capacity not exceeding 500 cc.

						Distance.
						miles yds.
1	J. L. E. Emerson	Norton ..	1	79 × 100	490	62 1,289
2	C. R. Collier ...	Matchless ...	2	70 × 64·5	497	60 1,660
3	C. R. Martin ...	Triumph ...	1	85 × 88	499	60 1,650
4	O. C. Godfrey ...	Indian	1	82·5 × 93	497	60 1,640

ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Gas main being laid down at Knebworth—special caution required here. The Watch Committee of the Soke of Peterborough have recommended that the police take stringent measures against motorists driving furiously through the town, especially in Narrow Street (6-mile limit). Under repair full width between the 7th and 8th milestones south of Morpeth, also 3 miles south; special caution at night. Wansford-Stamford road, full width under repair, also Scotgate Stamford Borough, full width, care needed here.

LANCASHIRE.—Improvements are still in progress near Little Marton windmill, 3½ miles east of Blackpool, lighted at night, special care necessary.

Half width of road up for repairs in Walton village 1¾ miles south of Preston, lighted at night, very dangerous here, special caution.

Preston-Wigan Road.—Full width between Bamber Bridge and Standish: in rough condition, bad surface, and many holes.

Members are advised to drive carefully through Walton-le-Dale, also through Poulton and district.

YORKSHIRE.—*Guiseborough-Redcar Road, via Gearby.*—Closed, pending the reconstruction of Lockets Bridge, Guiseborough, alternative route *via* Marske, turn right through Upleatham and Skelton Ellars.

Special caution is again recommended in the speed limits at Ilkley and Burley in Wharfedale.

EAST.

LONDON-YARMOUTH ROAD.—Members are advised to proceed with special caution down Dedham Gun Hill.

NORWICH-CROMER ROAD.—Extreme care should be taken when crossing the temporary bridges at St. Faith's, Hevingham and Ingworth, which are narrow and only suitable for light traffic.

YARMOUTH-LOWESTOFT ROAD.—Tar-spraying in hand half width; members proceeding from Yarmouth towards Lowestoft take the first turning on the right after passing Gorleston Station, thence *via* Blunderston; *vice versâ*, first turning on left after leaving Lowestoft Tram Terminus and *via* Blunderston.

SOUTH.

BATH ROAD.—Members are requested to slow through Slough and Maidenhead. At Maidenhead the road is closed at Castle Hill to All Saints' Avenue; alternative route, St. Mark's Road and All Saints' Avenue. Repairs are in hand at Kiln Green; also just east of Twyford.

ESSEX.—*Woodford.*—Special caution is advisable between Police Station and Bancroft Schools.

Loughton.—Night control working ¼ mile from Epping.

FOLKESTONE ROAD.—*Folkestone - Canterbury Road.*—Control likely to be working 2 miles from Folkestone.

KENT.—*Prick End, Chislehurst.*—Control likely to be working between the Church of Annunciation and the middle of Redhill, on the road to Mottingham.

LONDON DISTRICT.—On account of timing operations special care is necessary at Regent's Park Road, N.W.; near Church End Station, Finchley; Golder's Green; between Redcliffe Gardens and The Boltons, Earl's Court Road, S.W.; Victoria Embankment; Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; Croydon; Purley; between Wimbledon and Ewell; Hounslow-Staines; Hounslow-Colnbrook; Roehampton; Putney Heath; Harlesden; Maida Vale; Highgate; near Nags Head, Holloway; Lewisham, High Street; Sudbury to Harrow.

MIDDLESEX.—Control working on Staines-Sunbury Common road.

Wood Green.—For the same reason special care is necessary near junction of Bounds Green Road and Jolly Butcher's Hill.

Uxbridge Road.—Controls are likely to be working between Southall and Uxbridge, between Hampton and Hampton Court Bridge on tram lines.

OXFORD.—Controls likely to be working at the following places:—High Street, St. Aldate's Street, New Road, Botley Road, all of which are in the 10-mile limits; also in Woodstock Road, Southmoor Road, and the main Oxford-London road *via* High Wycombe at the "Three Pigeons" near Wheatley.

SOUTHAMPTON ROAD.—Controls are working at night through Egham. Repairs are in hand on the Egham-Windsor road; between Sunningdale and Bagshot; near Windmill Inn, also between Jolly Farmers and Frimley.

SURREY.—*Portsmouth Road.*—Flashlight controls are working between Kingston and Esher. Between Peasmarsh and St. Catherine's Hill, Guildford, re-metalling is now proceeding.

A control is likely to be working between the "Long Arch" and "The Orleans," from London; also from Iron Arch to the Long Arch.

A control is also likely to be working in London road, Windlesham.

Eastbourne Road.—Special care is advisable as a control may be working near Kenley police station and gas works, Whyteleafe.

WEST.

DEVON.—Timing in hand at Two Bridges on Plymouth-Moretonhampstead road.

CARDIFF DISTRICT.—Special caution is needed in Cathedral Road from Cowbridge Road to tram terminus; on the Cowbridge-Swansea road at Canton; at Rumney on the Newport road; Leckwith Common on the Penarth road; also at Dinas Powis and Eastbrooke on the Cardiff-Penarth-Barry road.

GLOUCESTER AND BRISTOL DISTRICTS.—*Bristol-Weston Road.*—Controls are working at or near Long Ashton, Bourton Tunnel, Wraxall, Hailsea, &c. Under repair at Star, 13 miles south of Bristol; lighted at night.

SHROPSHIRE.—Control likely to be working between Whitchurch and Broughall village.

MIDLANDS.

BIRMINGHAM DISTRICT.—*Stafford-Lichfield Road.*—Motorists are being stopped at the cross-roads leading to Kings Bromley and Ashbourne for the inspection of licences.

LEICESTER-KETTERING ROAD.—Control likely to be working on entering Market Harborough from Leicester.

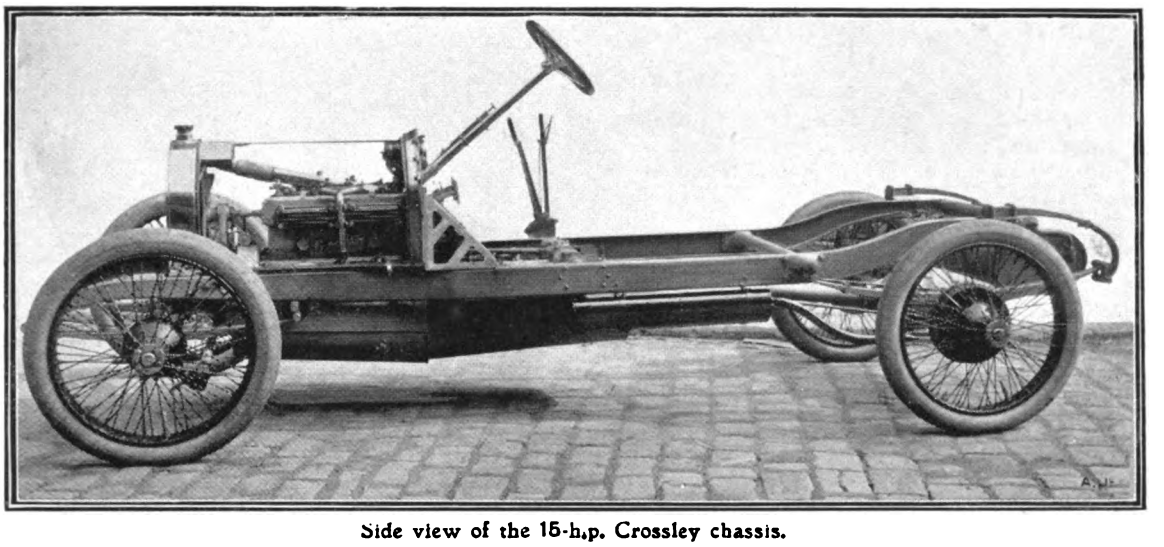
In Lighter Vein at I.A.E. Meeting.

AT the opening meeting of the winter session of the Institution of Automobile Engineers on Wednesday of last week, Mr. F. W. Lanchester was in lighter vein when proposing a vote of thanks to the President, Mr. T. B. Browne, for his address. He objected to Mr. Browne's suggestion that a fuel such as paraffin which "creeps" would be suitable for a machine which was wanted to travel at 100 m.p.h., and he also suggested that Sir Frederick Bramwell's definition of a motor car as "a thing that barks like a dog and smells like a cat" might now be altered to "a thing that is taxed like a dog and purrs like a cat."

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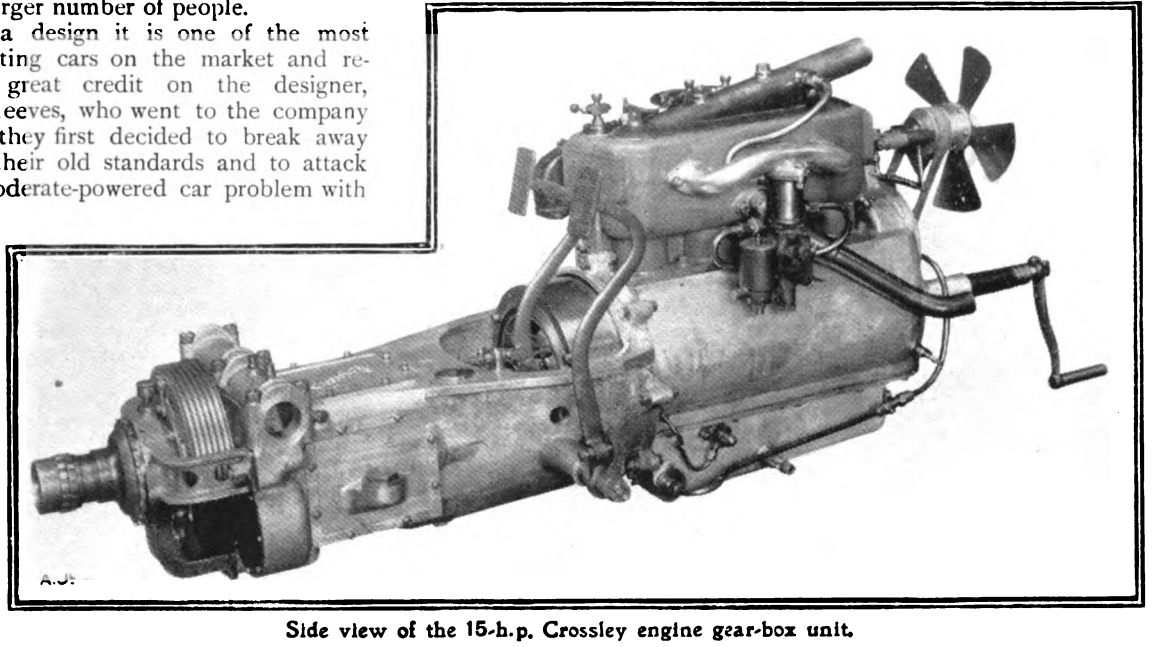
CROSSLEY CARS FOR 1913.

When you have a popular model that performs satisfactorily in the hands of the public, and has been developed by much trouble and expense to a point of commercial perfection that is not to be attained in a brand new design, it seems a pity to change it for the sake of fashion, and so we are not surprised that the Crossley Company should be presenting their 15-h.p. and 20-h.p. cars in unaltered guise for 1913. Both models have done exceedingly well during the past year, but of the two, the fifteen is naturally the most popular, because its price and power brings it within reach of a larger number of people.



Side view of the 15-h.p. Crossley chassis.

As a design it is one of the most interesting cars on the market and reflects great credit on the designer, Mr. Reeves, who went to the company when they first decided to break away from their old standards and to attack the moderate-powered car problem with all seriousness. Formerly, Crossley models were all of the heavy, slow-speed-engine type, to which their fifteen of to-day serves as the greatest possible contrast. It is light, graceful in design, and has an engine of 80 mm. × 120 mm. bore and stroke that has developed truly remarkable values in speed and power.



Side view of the 15-h.p. Crossley engine gear-box unit.

The 15-h.p. Crossley is quite one of the most interesting examples of the unit system of construction that is to be found on the British market. The engine is a 4-cylinder monobloc, and the gear-box is bolted to a flange on the base-chamber by means of an extension that serves as a casing partially enclosing the fly-wheel and clutch. There are critics who condemn this practice on the score of inaccessibility; but inaccessibility is largely a question of method, and it all depends on how you go at the business of taking down a Crossley clutch as to whether you find it inaccessible or otherwise. For instance, if you commence operations by taking off the nuts on the fly-wheel rim, you stand a very good chance of getting jammed-up somewhere; but if you pursue the procedure advocated in the firm's instructions to disconnect the universal-joint, which lies in the centre of the shaft between the clutch and gear-box, the operation becomes a straightforward job of ordinary simplicity.

Having regard to the success of the car as a whole, and the firm's willingness to continue its detail design

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unchanged, one must look upon the characteristic features of its construction with much appreciation. Thus, in the 15-h.p. model, the engine gear-box unit is carried by a three-point attachment to the frame. In front, the support is in the nature of a journal, holding a tubular shaft-like extension of the crank-chamber through which projects the starting-handle. At the gear-box end, however, the support is afforded by a transverse tubular member of the main-frame, which passes through an exceedingly rigid bracket construction cast in one piece with the gear-box proper.

Both the 15 and 20-h.p. engines are cooled by thermo-syphon circulation, and have a fan-assisted draught through the radiator. The fan-spindle is mounted on ball-bearings, and the fan-belt has an automatic adjustment to maintain its tension. Both engines are lubricated under pressure, the oil-pump being driven off an extension of the cam-shaft. Oil is drawn from the sump and forced through the hollow crank-shaft to the journals and big-ends, the pistons and gudgeons being lubricated by splash. Cast-iron pistons with three rings above the gudgeon-pin, but without scraper-rings are used.

The chain-drive to the cam-shaft is still retained, and with it the adjustment for tension and timing, which renders the Crossley system unique. The experience of the firm during the past year has been in favour of chains as giving a quieter and more efficient drive, provided always that the chains are large enough, are properly made, and have suitable means of adjustment.

Another feature that the manufacturers have seen no reason to regret is the adoption of the simple leather-faced cone-clutch, which replaced the earlier expanding shoe type. We welcome, however, the addition of a clutch-stop, as it will much facilitate increased rapidity of action when changing up. The gear-box itself is a compact design that the makers would be sorry to change, and a detail therein that equally pleases them, but is commonly overlooked even by the student of automobile construction, is their method of building up the shafts. The main gear-shaft in the Crossley box is ground true to size, and has four keys let in to milled grooves. The inner face of the sliding gear-wheel boss is also ground, and by this means the two perfectly true surfaces are brought into contact, whereas shafts that have their keys cut from the solid (commonly called castellated shafts) can only be ground on the *outside* face of the key, which is adjacent to the *inside* face of the keyway on the sliding member, which cannot be ground in that place.

Rudge-Whitworth detachable wire wheels are being continued as standard, but wooden detachable wheels can be supplied if desired at the same price. Two lengths of wheel-base are available for each model, and the prices for the 15-h.p. in chassis form are £350 and £370 respectively, while the 20-h.p. model is sold at £475 and £500.

Although the car stands first in the public eye, what pleases us even more are the very promising extensions at the factory, which are being carried out with exceeding thoroughness and complete absence of show. There is a great seriousness of purpose underlying Crossley methods, and the success that has been attained has been hard earned. Much is possible by co-operative effort, and much has certainly been accomplished in this case. Sir Kenneth Crossley takes the keenest personal interest in this branch of the factory that bears the great name of his family, and Mr. W. Letts, as managing director, has brought to bear on the fortunes of the company the impetus of an unrivalled experience backed by indomitable energy. In the careful management of Mr. Hubert Woods and the real skill of Mr. Reeves as a designer, is completed an intelligence department at the head of affairs that would not easily be excelled.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

New Members.—Among those who have recently joined the Association are Lord Halsbury and the Duchess of St. Albans—the total membership is now progressing well towards 57,000.

Special Road Note.—Stone breakers are now at work on the side of the road at the Navy Bridge, Chippenham. No wire screens are being used, therefore the road is strewn with sharp stone chippings, injurious to tyres. The Association has drawn the attention of the District Surveyor to the matter, in the hope that the necessary screens will be provided.

Speed Limits.—The County Council of Denbigh have applied to the Local Government Board for a ten-mile speed-limit Order for certain roads at Rossett, viz., a portion of the main road from Chester to Wrexham, and a part of the main road to Minera. Other applications which have been lodged for ten miles per hour speed-limit Orders relate to the parish of Iver (Bucks), the roads scheduled including that leading from Slough to Uxbridge, from Lea Farm to a point 20 yards east of Iver Bridge; also a portion of the road leading from Morton's Corner to Iver Heath. Another Buckingham County Council application relates to roads at Datchet, *i.e.*, portions of Windsor Road, Queen's Road, High Street, The Avenue, Horton Road, and the road from May's crossing (at Queen's Road) to 50 yards beyond Datchet House. An application by the Borough Council of Ipswich covers the following portion of the London-Yarmouth road passing through the town:—From Barrack Corner, along St. Matthew's Street, Westgate Street, Cornhill, Tavern Street, Carr Street and St. Helen's Street to its junction with Grove Lane. The Association will be represented at the inquiries, and all members familiar with the road specified who are able to assist in opposing the applications by furnishing useful information should communicate with the Secretary as early as possible.

A High Toll Charge.—Members travelling from Nottinghamshire to Lincoln should note that 2*s.* is charged for crossing the Dunham Bridge over the River Trent (on the Ollerton-Lincoln road). The alternative route is through Newark. Although this is a longer road, it is in good condition and does not considerably lengthen the journey. The toll in question is at present being dealt with by the Association, with a view to obtaining a reduction of this excessive charge.

Touring.—The touring department is informed that the Mayor of Orleans has issued an order reducing the maximum speed of motor cars in the town of Orleans to 10 kiloms. per hour.

Dangerous Cross Roads.—Several accidents have occurred at the cross roads at Grippenhall, near Warrington, owing to the presence of high hedges, which totally obstruct the view down both roads. The Association therefore approached the County Surveyor in the hope of obtaining his support in having the hedges cut down. Information is now received that the Surveyor has made the necessary arrangements with the owners of the land for rounding off the corner, as well as for cutting the hedges down to a safe height.



A trio of cars—from left to right: 28-h.p. Darracq, 30-h.p. Siddeley, and 18-24-h.p. Austin—owned by Mr. J. H. Potter of Five Oaks, a well-known Sheffield motorist.

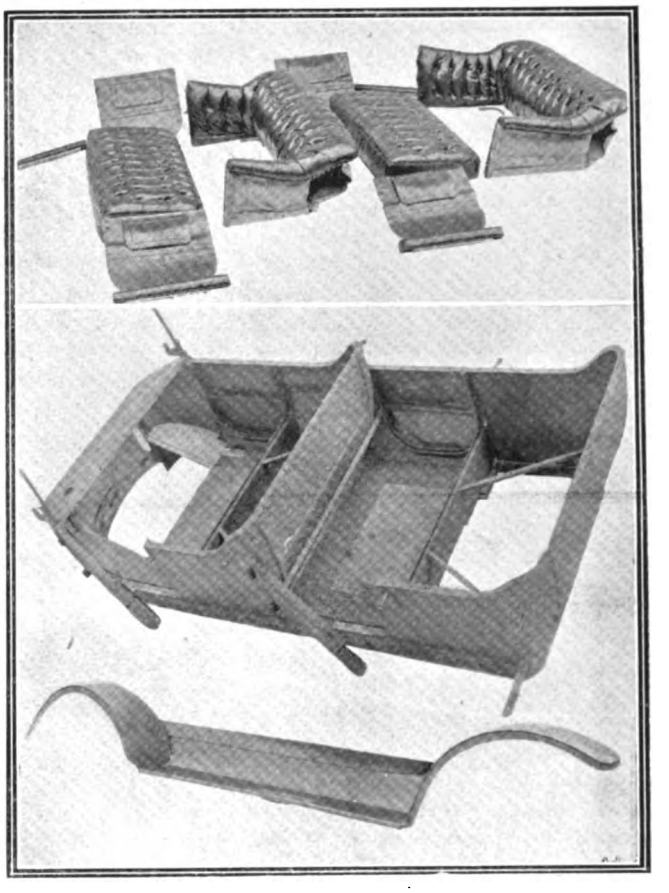
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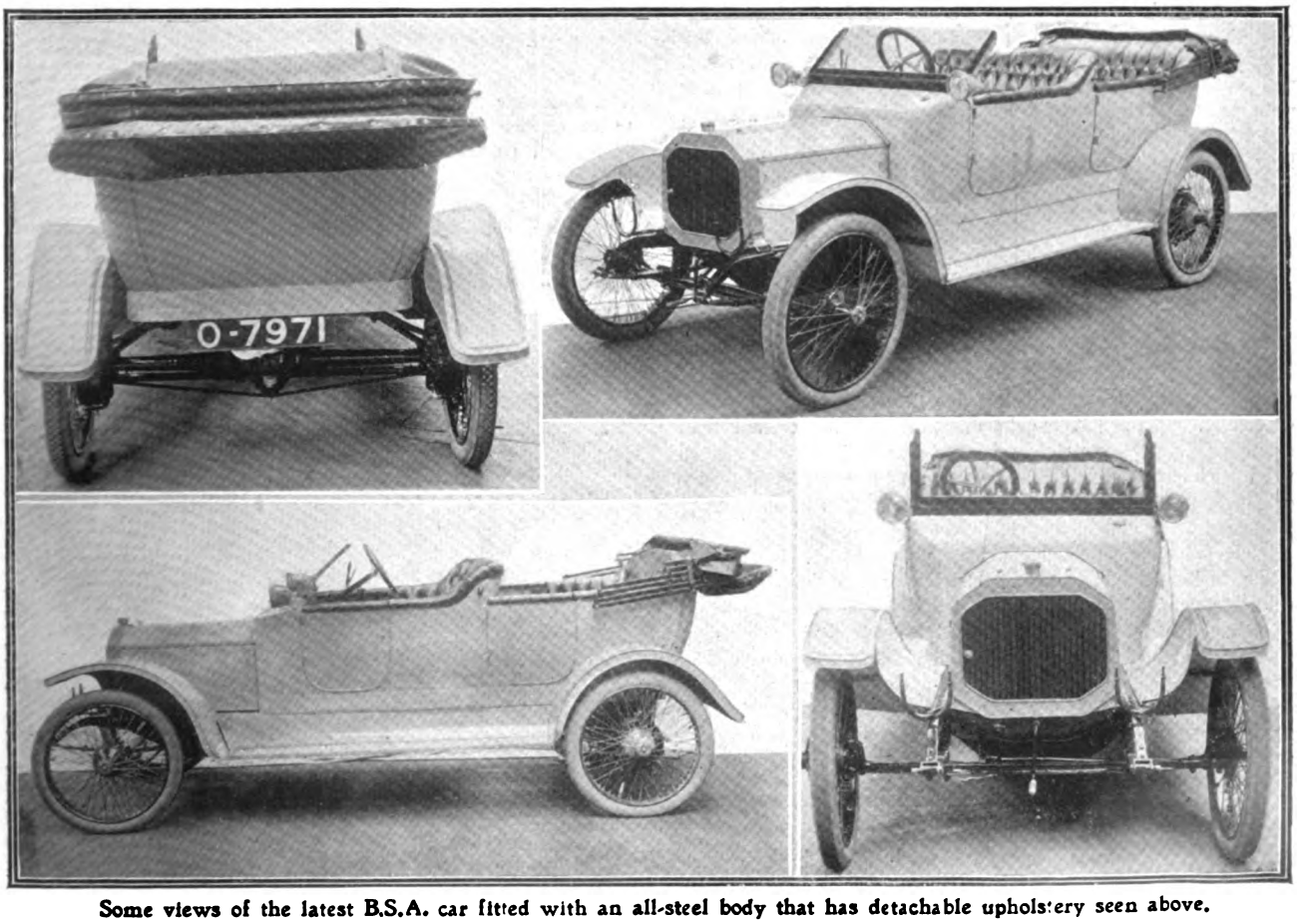
THE B.S.A. ALL-STEEL BODY.

THERE is no doubt that a standardised body points with unmistakeable directness towards steel construction as the proper solution to the problem. Steel lends itself, when handled in an engineering way, which implies standardisation, to being built lightly, accurately, and with great strength. It affords a body that is at once equally suitable for England and for the Colonies, and it provides coachwork of good appearance at a moderate price. In fine, it places coachbuilding on the level of chassis construction and makes possible an equality of satisfaction from each part of the car.

But the steel body has its own problems, and not the least of these is the difficulty of satisfactorily upholstering it. It is as a solution to this little matter that the adoption of Buch's patent by the B.S A. Co. possesses its chief scientific interest. The Buch patent provides for the upholstering of an all-steel body with fittings that are completely detachable. This feature in itself has an intrinsic value, inasmuch as it simplifies immensely the process of repairing a damaged panel or renewing a damaged part, which, to the purchaser of a moderate priced car, is an important consideration.

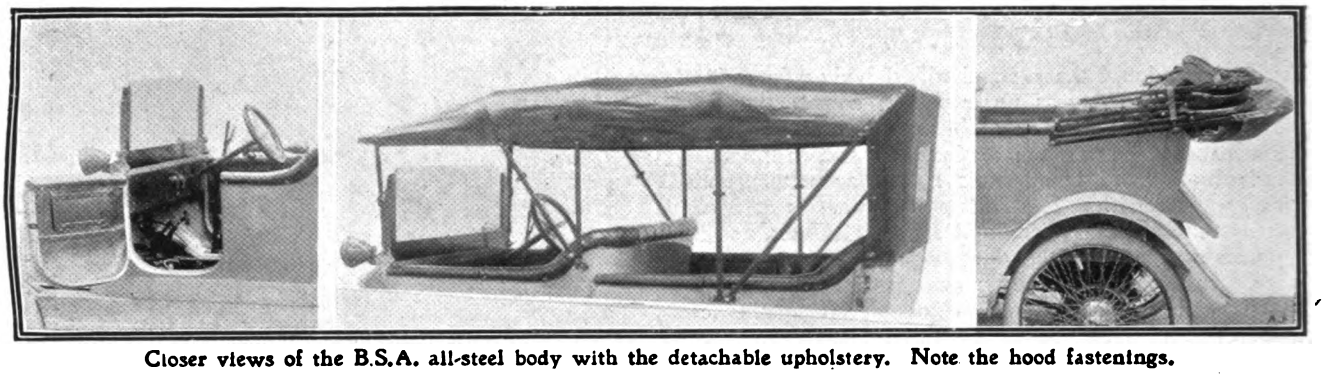
A mere glance at the accompanying photographs is sufficient to indicate that the latest B.S.A. production is in no wise an apparent departure from the most up-to-date sort of coachwork that is produced by the orthodox means. It has a smart well-finished appearance, and is even a superior job to what was formerly available. It is very interesting to study some of the views, and to note how the upholstery is attached to the steel body by a few bolts. The upholstery is made separately, and in units





Some views of the latest B.S.A. car fitted with an all-steel body that has detachable upholstery seen above.

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Closer views of the B.S.A. all-steel body with the detachable upholstery. Note the hood fastenings.

which fit together, as it were, like a box of bricks. It is unnecessary to go into detail as to the precise manner of accomplishing this or that fastening peculiar to body building. It is sufficient to show that the results both from the manufacturers' and from the users' points of view are all that can be desired.

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Notes from New York

By way of emphasizing the hugeness of its works, one Detroit motor car firm has stated that it employs a staff of men simply to look after the waste metal. Some ten railway-car-loads of steel turnings and three car-loads of cast iron borings are returned to the foundries each month, while the brass waste is said to total to about a ton a day.

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Commissioner Edwards, who is in charge of the Street Cleaning Department of New York City, has asked the Budget Committee to include in their estimates for 1913, the sum of $210,000 for the purchase of 40 motor vehicles for the removal of refuse and street watering. He also asks for another $200,000 to be spent in installing motor street sweeping machines. Several motor vehicles have been in use for some time, under a rental demonstration arrangement, and they have proved so satisfactory that it is desired to completely equip the Department with modern appliances.

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At the exhibition held in connection with the Fortieth Annual Convention of the International Association of Fire Engineers recently held at Denver, Col., for the first time there was not a single piece of horse-drawn apparatus on view. There were large numbers of petrol and electrical vehicles ranging up to one big machine fitted with a 165-h.p. six-cylinder motor and a centrifugal pump capable of lifting 1,000 gallons of water at 120 lbs. pump pressure

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In order to aid the police of Indianapolis in bringing reckless drivers to book, several members of the Hoosier Motor Club have been given special police powers. Following the example of Buffalo, N.Y., there is a regular scale of fines at the Indianapolis Police Court at the rate of $1 per mile, up to a maximum of $50 for offenders against the speed limit. A motorist who was arrested by the secretary of the club for driving at a speed of 30 miles an hour was fined $30.

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For some thirty-one years the B. F. Goodrich Co., of Akron, O., have given their employees an annual picnic, but the party has now grown so large—this year it would have included 15,000 employees and their families—that it is difficult to find a suitable venue within reasonable distance of Akron. Consequently, this year the employees of the combined Goodrich and Diamond Companies were given a general holiday, and presented with envelopes each containing a dollar, so that they could enjoy the holiday in whatever way their fancy might lead them. The plan seems to have succeeded very well, and will probably be continued in future.

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In view of the increase in the price of gasolene, most owners are keeping an eye upon their petrol consumption, and some complaints from car owners in New Jersey as to short measure led the Superintendent of Weights and Measures to pay a surprise visit to one or two of the garages. During his round he discovered a couple of cans which, by their size, should have held five gallons, but which refused to take more than three gallons. On ripping the cans open they were found to have another one built inside. The Superintendent is now going to visit all garages in his district, and will also pay some attention to registering petrol pumps, some of which, it is believed, have been tampered with so as to give short measure.

• • •

In connection with the Motor Car Show which is to be held in New York on January 11th to 25th, rules have been made by the Automobile Board of Trade prohibiting the use of lighted lamps unless their light is cast upon the wall or on an object within 3 ft. of the lamps, so that they do not shine upon any person. No advertising souvenirs may be distributed, and no signs such as price cards, sold notices, &c., will be permitted in the exhibits, while all literature to be distributed must be passed by the Show Committee. Smoking and horn-blowing are also prohibited.

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After all, the National Reliability Tour of the A.A.A. has had to be postponed mainly owing to insufficient entries having been received. It appears that the activities in connection with the Presidential Election Campaign are held responsible for the lack of support.

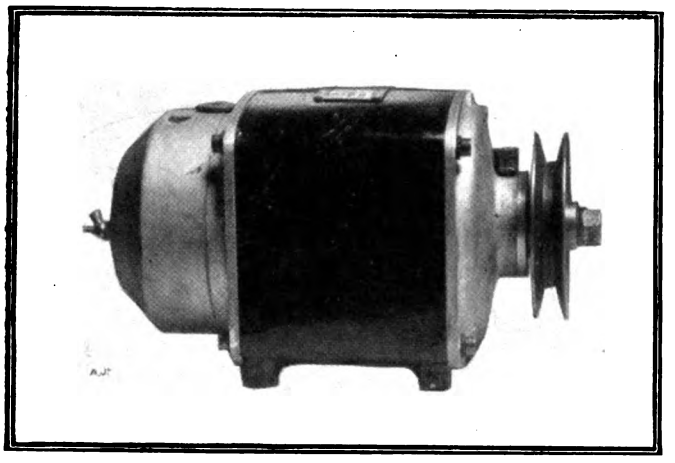
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DYNAMO LIGHTING SETS.—VI.

THE BROLT.

THE standard "Brolt" dynamo suitable for average touring cars and small landaulettes is the type C_5, which has an output of 72 watts at 12 volts 6 amps., and a net weight of 25 lbs. Its maximum output in ampères is reached at about 1,050 r.p.m. to 1,100 r.p.m.

The method of output control is automatic and does not require the use of any moving parts. In addition to the usual field poles, the shunt winding of which is connected to the brushes, there are two auxiliary unwound poles spaced at right angles to the main fields. These unwound poles are excited by the cross-magnetisation of the armature current. The two brushes are placed in a neutral position relative to the main wound poles and are wide enough to bear upon several segments of the commutator, in other words to short circuit several of the armature coils.



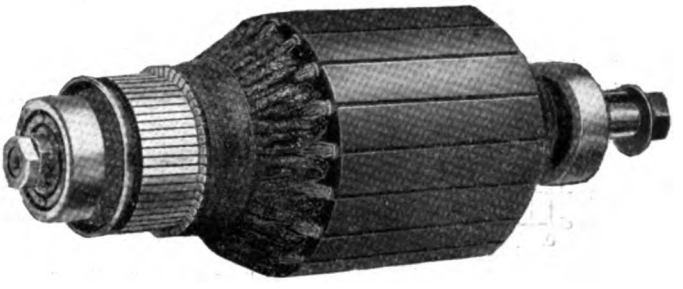
Side view of the Brolt dynamo, showing pulley and brush casing in position.

When the armature is revolved voltage is induced between the brushes in the ordinary way, and immediately the necessary speed is reached the dynamo commences to charge the battery. But the load current in the armature exercises a cross-magnetising effect which creates a magnetic flux in the auxiliary poles. This cross flux is cut by those armature coils short-circuited by the brushes, and in consequence a short-circuit current is induced in those coils which is proportional to the cross flux and thus to the speed of rotation. It will be clear that the direction of the short-circuit current is such that it tends to directly demagnetise the main wound poles.

Any increase in speed is immediately accompanied by a proportionate increase in this short circuit current which thus keeps the output constant. Increase in the output current must therefore result in increased cross-magnetisation.

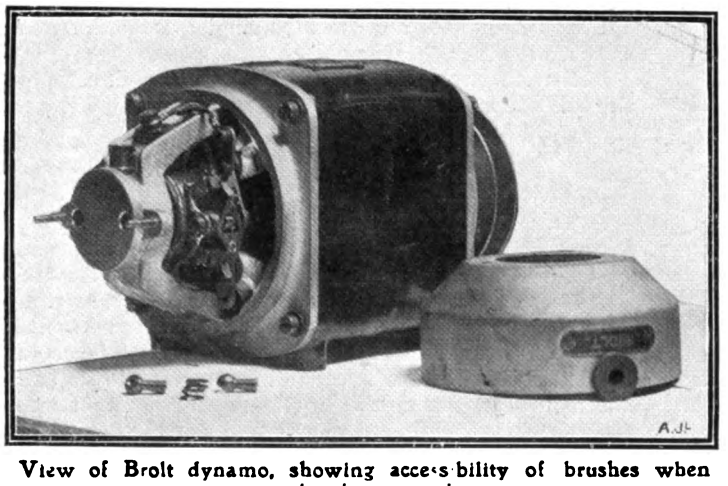
The brushes are made in two halves, electrically connected together in order to simplify the construction.

A driving gear ratio of 3 to 2 is found to be quite sufficient when the dynamo is run direct from the engine, so that the maximum charging current is reached at a car-speed of 16 or 18 m.p.h. on top gear.

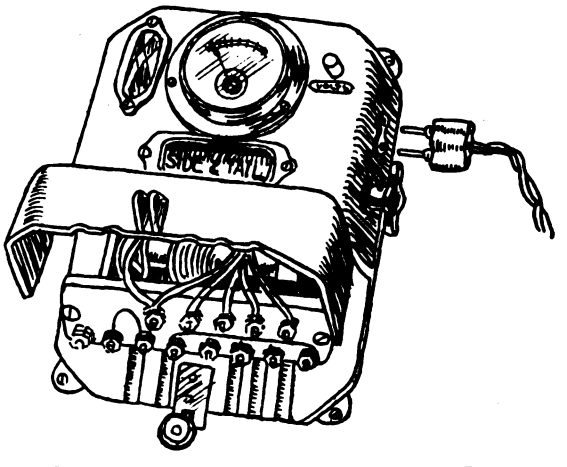


Armature of Brolt dynamo.

A neat little switchboard has been specially designed for the control of this set. A single combination switch, combined with a revolving indicator, provides for the following consecutive connections :—



View of Brolt dynamo, showing accessibility of brushes when casing is removed.

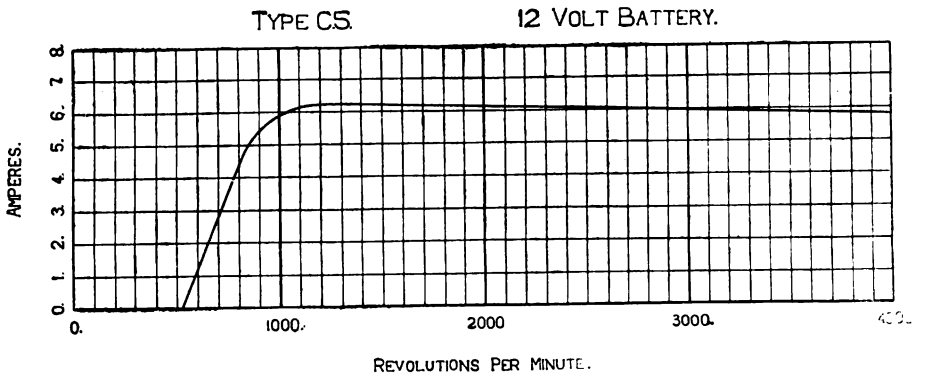


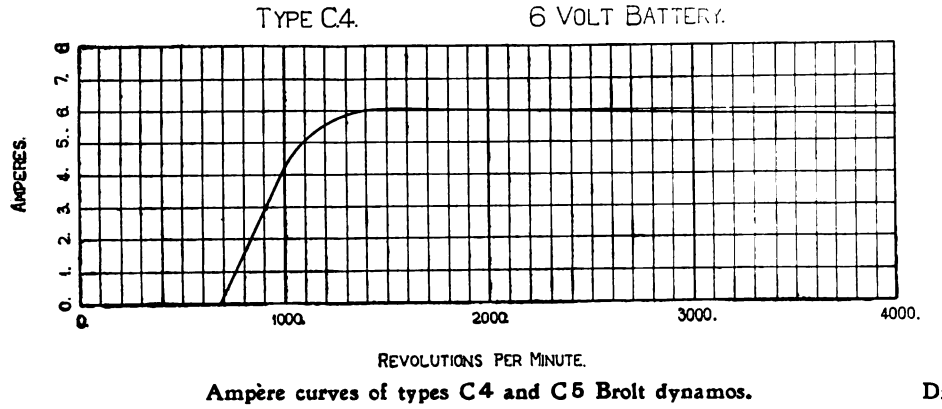
Sketch of switch-board of Brolt lighting-set.

1. Dynamo and lamps disconnected.
2. Dynamo charging. Lamps disconnected.
3. Dynamo charging. Side and tail lamps on.
4. Dynamo charging. Head, side and tail lamps on.
5. Dynamo charging. Head and tail lamps on.

The revolving indicator just spoken of is situated behind a window in the front of the switchboard. Incorporated with the switchboard is a magnetic cut-out of the

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Ampère curves of types C4 and C5 Brolt dynamos.

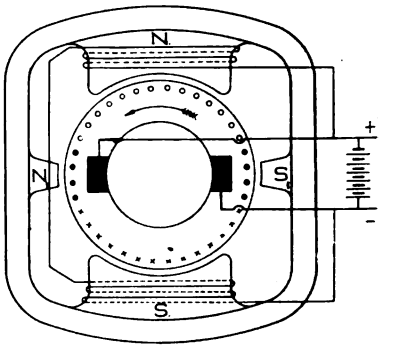


Diagram of section of Brolt dynamo.

usual type, the position of which is positively either on or off. All connections are made inside the casing of the switchboard and the removal of the front renders all wiring, switches, &c., easily accessible. The automatic switch, which is also uncovered for inspection when the front of the board is removed, is arranged to cut in at about 500 r.p.m. of the armature, and should not be tampered with or adjusted. The safety devices consist of an accessible fuse and a tell-tale lamp, the contacts of which are held apart so long as half an ampère is passing through the tail lamp circuit.

A plug socket for connecting up an inspection lamp is provided at the side of the switchboard.

A special meter is provided at the top of the board which always indicates the current in ampères given by the dynamo, but it is also provided with another scale calibrated in volts. A small push is situated just to the right of this meter, which, when depressed, connects up the volt meter coil while disconnecting the ampère coil, thus allowing the battery voltage to be immediately ascertained.

A neat idea is the terminal board or distributor, which is intended to obviate joints in the cables. The distributors are made in two sizes, three and seven ways, the latter size being provided with extra terminals for tapping off circuits for interior lights, electric horns, cigar lighters, &c.

Suitable batteries are provided ranging from thirty to sixty ampère hours' capacity.

Messrs. Brown Brothers, of Great Eastern Street, are the sole factors for the Brolt dynamo system.

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A Rebate for Motor Ambulances.

IN the House of Commons last week, Mr. Lloyd George, in reply to a question by Sir J. Randles said that he was prepared, when opportunity offers, to propose an amendment in the law which would permit a rebate on motor spirit used for motor ambulances, to convey patients to hospitals and infirmaries.

Edinburgh Wants Motor 'Buses.

AN agreement has been reached between the Edinburgh Town Council and the Local Tramways Company under which the latter will not oppose the application of the Town Council to Parliament for powers to run motor 'buses on three routes in various parts of the city. The financial responsibility of the venture will rest entirely with the Town Council, and the Tramways Company have promised to help in any way possible. It is proposed to commence work with ten 'buses. All sorts of financial disasters are prophesied in connection with the venture. We wonder if the critics have heard of the work being done by the London General Omnibus Company?

⊛ ⊛

The Inconsistencies of Kingston.

THE Kingston Bench had a very good opportunity last week of placing on record their absolute singleness of heart with regard to their jealous watchfulness that the amenities of the road are preserved, but they missed it. John Billinton was in the dock charged with being drunk, and the constable who arrested him said that all he could say was "The road is mine and I am going to stop all the motor cars that come along." A motorist went into the witness box and said that at Cobham the defendant walked in front of his car and took no notice of warnings. Evidence was also given that the defendant stepped in front of a motor cycle, the rider of which had his machine damaged in avoiding the man. On the defendant denying that he was drunk the Bench dismissed the case. It is to be hoped that the constable will not feel too keenly the sorrow caused by the Bench so lightly disregarding his evidence, though no doubt he will oft-times be tempted to wonder as to what would have occurred if the motorist had only been in the dock instead of the witness box.

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CORRESPONDENCE.

Who Built the First Motor?

SIR,—I heard and read a good deal two or three months ago about a museum that was proposed to be formed for exhibiting early motor vehicles, and application was made to me by a contemporary journal on two or three occasions to enable them to trace the earlier vehicles made by the firm, Roots and Venables, at 100, Westminster Bridge Road.

About the same time I saw in one of the motor journals a letter from a Mr. Bremer relative to a claim of his that he had made the first internal-combustion engine motor vehicle, but as several similar claims had been made before which on investigation proved to be entirely without foundation (one claim, for example, was that of having made the first oil engine, which proved to be the case of an engineer in the north of England who had fired a boiler by oil spray at an early date), I took no notice of the letter.

I knew that Mr. Knight had previously made such a claim, but this was completely disposed of in correspondence to your own and other journals.

I have now seen on a table at the R.A.C. a prospectus of the museum in which the Bremer vehicle is shown. I have not seen the vehicle for which Mr. Bremer makes his belated claim (I understand the museum is now closed), but I do think that a journal collecting examples for a motor museum, a no doubt worthy object, should accept *new* claims only on careful investigation, that there should be sound collateral evidence to support the claim, and ample documentary corroboration of date regarding events alleged to occur in 1895, an interval of seventeen years.

One invariably finds that when a pioneer in any particular industry commences his designs or drawings, he finds so many problems calling for solution that he is compelled to invent to solve a problem or overcome a difficulty, which invention he has to protect by patent before he publishes or shows to the public. And in designing a self-propelled carriage in those early days, something new would have to be protected relating either to the engine transmission or the running gear at the outset.

It is very significant that the first application for a patent we have been able to find made by Mr. F. Bremer is dated 23rd March, 1896, complete specification filed with drawings, December 23rd, 1896.

In view of the fact that the greater the lapse of time after any event, the more difficult it becomes to determine from the historical point of view the truth or otherwise of the *new* claim, it would appear to be advisable for some influential journal or body to make due enquiry into the dates of the production of the alleged earlier vehicles, so as to place these events on record and beyond doubt.

It becomes the more necessary as we still might have further claims of the kind arise in the future when it will become more difficult, owing to the lapse of time, to sift such claims.

J. D. ROOTS.

Official Trial Results.

SIR,—On July 18th, 1910, the Royal Automobile Club published a certificate of an official trial of a 65-h.p. car from London to Edinburgh and back, with a speed trial afterwards at Brooklands. In this trial the fuel consumption was arrived at under regulations by which the engine was not allowed to be stopped while the car was running downhill.

On September 6th to 13th, 1911, a 40-50-h.p. Rolls-Royce car was run under precisely similar conditions, under R.A.C. supervision, over the same road, and, although handicapped by 24 per cent. more wind area and 6·67 per cent. more weight, the fuel consumption was 25·6 per cent. better than that of the Napier; and, in spite of the Napier engine having 23·459 per cent. larger piston area than the Rolls-Royce, the latter was 2·91 per cent. faster on the track.

In other words, the Rolls-Royce most handsomely beat the larger Napier in every respect, though heavily handicapped, and this, too, in a test selected and devised by Messrs. S. F. Edge, Ltd.

In June of this year, Messrs. Edge entered one of their 65-h.p. Napier cars for a London-Edinburgh-London trial, with speed on the track, but they altered the conditions of the trial in such a way that the Napier had a far better chance than the Rolls-Royce to obtain good consumption. Thus, instead of it being forbidden to stop the engine while the car was running downhill as in former trials, it was arranged that the engine might be stopped. Yet, in spite of this very considerable advantage, the consumption of the Napier was not so good as the Rolls-Royce, and, notwithstanding its larger engine, the Napier's speed on the track did not equal that of the Rolls-Royce.

In September, Messrs. Edge again entered a Napier car, apparently with the object of beating the Rolls-Royce record, though not under the same conditions as obtained in the Rolls-Royce and earlier Napier trials. The condition forbidding the engine being stopped while the car was travelling downhill was waived, thus allowing the car to travel by gravity alone, which of course meant no fuel consumption at all over such distance. Experiment has shown that this allowance gives a car an advantage equal to many miles per gallon on a long journey.

Furthermore, I find the relative wind area of the Rolls-Royce was 13·01 sq. ft. as compared to 10·3 sq. ft. of the Napier, another considerable advantage in favour of the Napier.

With the double advantages of easier conditions and material advantages, it would indeed have been strange if the Napier had not achieved a result nominally better than that of the Rolls-Royce; still, I claim it is manifestly unfair and unsportsmanlike to suggest a comparison between the two.

It would seem to me, further, that the carburettor arrangement by which the Napier achieved this result was otherwise inefficient, seeing that in spite of a smaller wind area, and an excess of 23·459 piston area, the Napier still failed to equal the speed of the Rolls-Royce on the track.

What I want to make clear is, that the Napier has not beaten the Rolls-Royce record, inasmuch as that record was not made under the new conditions devised by Messrs. Edge, and it is only right this fact should be made clear to the public mind.

Brook Green, W. October 11th. JAMES MCMANUS.

[It appears to us that it is our correspondent who is making the comparison that he describes as manifestly unfair.—ED.]

The Unofficial Tyre Test.

SIR,—Will you kindly allow me to deal with the material points raised by Mr. William George in your last issue? Those points have arisen in his mind out of the comparative test to destruction of Victor and other tyres. The object of this test, your readers may be aware, was the tabulation of comparative data of value to the private motorist, inasmuch as it would generally indicate the comparative quality of the tyres under test. Given such data, he would be relieved of the necessity for the slow and expensive method of ascertaining by personal experience which tyre would give him the best mileage per sovereign of expenditure.

We think it is generally conceded that tyre cost is of primary importance in automobile development. Give a reduction in running expenses, and demand for cars increases roughly in that measure. In any case such a reduction is of material benefit to actual motorists as distinguished from potential motorists.

In the special circumstances made by the R.A.C., which first accepted and then declined to conduct the trial, we conceived the idea of asking private motorists themselves to supervise and control it. The nature of their ready response, which brought us over 5,000 letters of approval, and the generous services of 1,250 eminent gentlemen who undertook to serve on the national committee was, and is, we submit, all the evidence necessary in proof of our affirmation that this matter was of large importance to the private owner.

It is generally agreed by the Press and all other responsible critics, including agents of the other tyre companies concerned, that the rules drawn up by the committee, and framed upon the conditions laid down by the R.A.C. itself when first it undertook the control of the competition, were as comprehensive and inflexible as any rules could possibly be. There was no loophole left. Every contingency was provided for. And it is again admitted by the same authorities that the rules have been observed, and that the test has been absolutely and scrupulously fair. We say that the more readily, because we, as a firm, were removed entirely from any voice or right of interference in the contest. We merely pay the piper, we do not call the tune.

The result so far, as your readers may know, is that the Victor tyre has in the first round of the test (steel-studded non-skids; plain and grooved types are still to test), vindicated our claims for it as a better tyre than its competitors. Victor mileage on a two-ton car with four up, running all over the country and not on a special route, was 5,010 miles, and then it was certainly not run to destruction. A stud stem penetrated the fabric and punctured the tube. With a Victor internal gaiter fitted the tyre is probably still equal to a good running life. The mileages of the other three tyres were respectively 4,767½, 4,261 and 3,799.

All those mileages, it will be observed, are notably good—but Victor is best.

Now we may deal with Mr. William George's points. First the suggestion that the Victor tyres bought for the competition may have been of a special type. We anticipated that some such criticism would be made. We have explained the precautions which were taken to raise the test above all suspicion. If that is not sufficient for Mr. George we will produce *positive*, not negative evidence, that

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the Victor tyres were stock tyres in every respect, and in every respect no better and no worse than those sold to our customers. We only ask Mr. George to satisfy us, or the editor of the AUTO., whose word will be all-sufficient, that he is a disinterested motorist in quest of information, and we will give him all the evidence he requires, or we will give it to you, Sir, as we offered to give it to the *Autocar* and the *Motor* at the commencement of the trial. The editors of your contemporaries, however, took the view that such a thing as is now suggested by Mr. George would be foreign to the minds of all disinterested motorists, and they did not desire our evidence.

Because, Sir, the thing is grotesque. How would Mr. George suggest the tyres could be of special manufacture? In the steel studs? In the leather band? In the vulcanite in the bead-strip? In the solution of the band to the casing? In the quality of the rubber? Or does he suggest an extra layer of canvas? Because that cannot be done, as he would know if he had any knowledge of tyre manufacture. He can only allege special care in manufacture or superior rubber, and in both cases the objection is absurd. No Victor tyre can vary from standard in construction; while, if it were possible by paying a higher price to get a better quality rubber, that is, a rubber which, in tyre form, would give greater service per unit of expenditure, every manufacturer would get it in order to have the best tyre on the market. As it is, every manufacturer uses the best mixture (pure rubber is, of course, useless for tyre making) from *his* point of view. That mixture, and his method of incorporating it with the other components, all of which are of a given quality, make the complete tyre. The motorist judges that final result. In the Victor the quality of the mixture, the enormous strength of the fabric, the high standard of excellence maintained in all the other ingredients moulded to a particular principle and by a peculiar method, result in a tyre which, we believe and are proving, is better than any other. The point, however, is that a specially-constructed Victor is impossible.

But assuming, for Mr. George's benefit, that it were possible, how could we know which order of the thousands we receive through agents was the order for the test tyres? No agent, for obvious reasons, ever gives us the name of his customer. Therefore, when Mr. George says that if Sir Thomas Lipton sent an order through an agent for one of the test tyres we should know what they were required for, he is speaking of another impossibility—quite apart from the fact that he is reflecting upon the acumen of Sir Thomas. This gentleman and several other very eminent motorists kindly undertook privately to purchase the test tyres. Does Mr. George seriously suggest that they would not take the precaution necessary to prevent us foisting special tyres upon the Trial Committee? The idea is absurd, quite apart, we repeat, from the fact that it would have been impossible for us to supply special tyres.

That, we hope, disposes of any suspicion of unfairness toward the other competing tyres. Of course it may be, as Mr. George suggests, that these other tyres were purchases through agents who had them on hand as dead stock for some months. All we know is that the tyres were bought in the open market, and if it is possible that motorists buying similarly have to pay for deteriorated stock, then the moral seems to be—"Buy Victors, and have them fresh!"

The one other material question Mr. George raises is, that "it is impossible to say that one make is better than another merely because one specimen tyre happened to put up a longer mileage." Well, Sir, this test will cover, we anticipate, at least 12,000 miles. Four different makes of tyres and three types of each make are being tested. That is to say, the trial will cover a mileage approximating to the average of a year's ordinary running, and test to destruction twelve different tyres. If Mr. George says that such a test cannot provide useful data for the private motorist, we imagine he will get few, if any, to support him.

Of course the test is not infallible. It is only submitted as an indication of the wearing qualities of various tyres, and in evidence that the Victor is at least one of the best if not the best tyre available. We submit that if a private motorist in his own experience over a similar distance, and with an equal consumption of tyres, found one make give better results than another, it would be very hard to persuade him that his test had no value.

I should like to add that I am indebted to Mr. George for his concern, and am glad to observe that he has given expression to his sense of the importance of the matter by duplicating his letter to you and sending it to at least two others of your contemporaries. This is a method which is, of course, common among the trade, and other gentlemen directly affected, but is somewhat rare, I think, among entirely disinterested correspondents. I submit that when a private gentleman takes the trouble to do as Mr. George has done, it is strong support of our view that the Victor tyre trial is a matter of moment to all motorists.

THE CHALLENGE RUBBER MILLS.
W. YARWORTH JONES, Managing Director.

A COMBINE FOR CHEAP PETROL.

UNDER the title of Motor Owners' Petrol Combine, Ltd., a company is in process of formation with a capital of £1,140,000, by a London financial group, with the idea, as the title denotes, of gathering together a combination of motorists for the purpose of their obtaining petrol cheaper than is at present possible. This scheme is, of course, the outcome of the recent widespread agitation in regard to this very important question, and the idea is that by means of this combine, motorists should not only obtain their petrol and lubricants at a minimum cost, but that the ordinary motor trader's margin of profit should not be interfered with, and at the same time the motorists who participate should have a chance of making a profit themselves, together with a bonus, on their actual purchases.

From the few particulars to hand, the scheme appears to be a most comprehensive one, as the company is to possess its own oil fields, its own ships, refinery, storage, rolling stock and plant for distribution, in the chief dock centres and inland towns in the country. The sites for the refinery, &c., have already been secured, and we are informed that the new company will have the active co-operation of some well-known firms. There is no idea of asking petrol consumers to commit themselves to any binding contracts for buying their supplies. Motorists are invited to obtain further particulars of the whole undertaking at the offices of the Combine, Egyptian House, Piccadilly, W.



The new poster for the Olympia Motor Show, opening on November 8th, which will shortly be a striking adornment on the picture hoardings of the metropolis and country.

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The AUTO MOTOR JOURNAL

NOISE AND SMELL.*

By T. B. BROWNE, President of the Institution of Automobile Engineers.

IN its early days, the motor car was defined by Sir Frederick Bramwell as "that which barks like a dog and smells like a cat," and I am sure that however appropriate the epithet may have been then, it is certainly in no way applicable now, as the noise and smell emitted by a modern automobile have become practically non-existent.

These two qualities of noise and smell, although both of a quantitative nature, have so far baffled all attempts at measurement, and there does not seem very much hope of any improvement in this direction in the near future.

Perhaps the work which has been done of recent years in studying the indentations caused by phonographic records may lead us to some definition of "amount of noise," but the fact is that no one has as yet suggested a definition for a unit of either noise or smell.

No problem has been found more difficult to deal with than that entailed in the endeavour to reduce, if not entirely to remove, the various noises emitted by the automobile. These may be roughly divided into those proceeding from the engine and those proceeding from the transmission.

In the early cars the noise from the exhaust was so great in comparison with the other sounds from the car in motion that the latter were almost unnoticed, but with the great improvement in silencers every little sound produced by any part of the car became more prominent, until at last such a degree of silence has been obtained that the swish of the steel studs of the non-skid tyre as they pass over the surface of the road is very often the loudest sound emitted from the car.

The silencing of the exhaust can only be brought about by baffling to such an extent that a certain amount of back pressure is unavoidable, and this had led to the fitting of exhaust cut-outs whereby the silencer was so frequently put out of action by the driver that a rule was recently made by the Local Government Board forbidding their use except on motor cycles.

As the efficiency of engines has been increased, the problem of noise reduction has become more difficult, as with the rise of pressures and the increase in the size of valves, the tendency to produce undue noise has become correspondingly greater. Since the introduction of the sleeve valve by one of the largest makers of automobiles in this country, many attempts have been made to devise new systems of valve motion; many of these being merely revivals of old methods already discarded by gas engine makers are foredoomed to failure, but several new arrangements are already fitted to cars, and are running comparatively successfully. Attempts to use piston valves have been made, but in some of these the piston valve heads are exposed to the explosion pressure so that severe reversals of stress are put upon the valve actuating mechanism, which tend to produce undue noise.

Several forms of rotary valves are being tried, but great difficulty must naturally be experienced with these in obtaining a gas-tight joint, especially in those where the same rotary part is used for inlet and exhaust passages, as the consequent warping is bound to cause leakage. With this type of valve the difference between the temperature when starting from cold and that when running will result in considerable expansion of the parts which are not water cooled, and it must always be a serious problem to overcome this difficulty. If, however, this can be done, there is much to be said in favour of the use of a rotary valve, as in any type of reciprocating valve, whether poppet, sleeve or piston, there is bound to be noise as soon as the slightest wear of the valve driving mechanism occurs owing to the inertia of the reciprocating parts.

In some cars of modern design the poppet valve tappets are now provided with rubber buffers with a view to reducing the noise to a minimum, and the provision of doors enclosing the valve tappets and springs is now almost universal.

One source of noise from the engine has been due to the spur wheels driving the valve gear as if the teeth are fitted too tightly in mesh, a loud humming noise ensues, and quite a small amount of backlash in the teeth results in a hammering, due to the reversal of stress mentioned above. In many cases, a saw-tooth pattern chain is now fitted in place of spur wheels, with a view to removing this difficulty. In other cases recourse is had to hard grey fibre, as the material for one of the wheels, in order to deaden the sound.

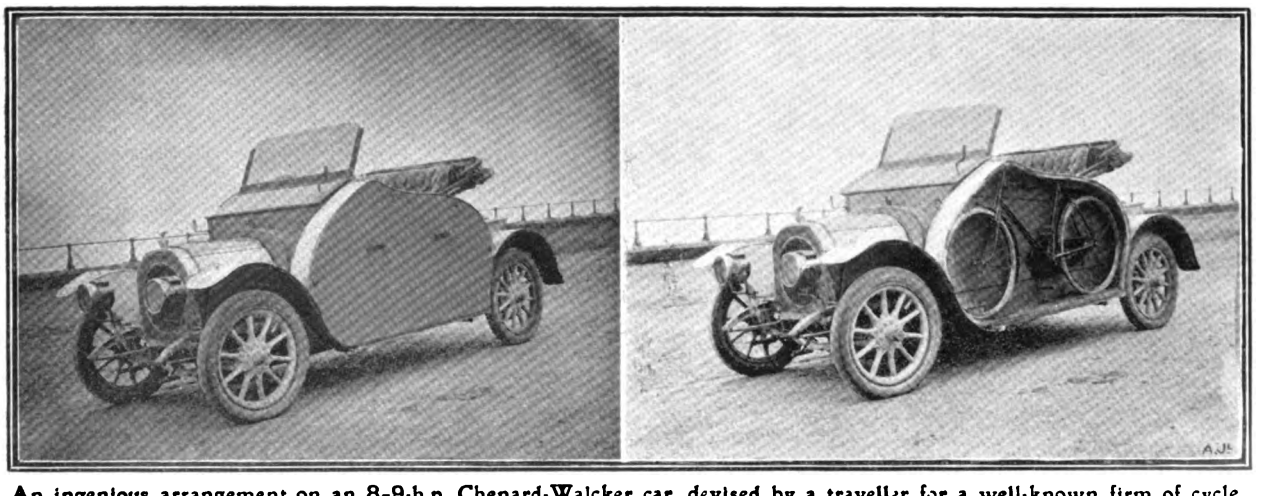
With the introduction of very light steel pistons, another source of noise occurs in their tendency to tap against the side of the cylinder, and an attempt has been made to get over this by cutting slots in the skirt of the piston.

The noises in the transmission gear of an automobile proceed from several sources. The most troublesome of these is undoubtedly that caused by the gear wheels of the change-speed gear. With the universal adoption of direct drive on the top gear, this can only occur when recourse is had to the lower gears, when the drive is transmitted through two pairs of spur wheels in the gear-box. The introduction of ball-bearings has intensified the trouble from this source, as it is well known that plain bearings do not conduct the sound emitted by the gear wheels to anything like so large an extent as ball-bearings. Some experiments which I conducted with ball-bearing cam-shafts several years ago bore this out to a surprising degree.

By carefully designing the form of teeth so that the wheels run at a practically uniform speed, and also by taking special precautions to prevent warping during the hardening process, and at the same time making the shafts and gear-box as stiff and compact as possible, the noise from this source has been reduced to a large extent, but it cannot be denied that this noise from the indirect drive is still one of the most troublesome features in many cars now running on the road. A successful attempt to overcome the difficulty on omnibuses has been made by the use of short chain drives in lieu of the spur-gears, and several firms are now adopting this system for the lighter passenger cars.

A light car with variable friction-drive is now being manufactured, the two friction-discs which are placed at right angles being composed of hard and soft steel respectively. In driving the car care has to be taken to prevent the discs slipping, as otherwise a flat is likely to be produced on the wheel whose edge impinges on the face of the other disc.

* Abstract from the Presidential Address, October 9th, 1912.



An ingenious arrangement on an 8-9-h.p. Chenard-Walcker car, devised by a traveller for a well-known firm of cycle manufacturers for carrying his samples. This little car is in continual use over the whole of Scotland, and makes an average weekly mileage of about 500.

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Several petrol-electric systems are in use, and are giving most satisfactory results for omnibuses and other heavy vehicles where the weight of the dynamo-electric machinery is not too large a proportion of that of the whole vehicle. A consumption of 58 ton miles per gallon was obtained with one petrol-electric system in a recent R.A.C. test of 2,000 miles on ordinary roads last year.

Hydraulic systems of variable gear have not yet found their way into general use, though several of these show considerable promise in the experimental stage.

Another serious source of noise has been that due to the bevel-gear used in the transmission. In chain-driven cars great difficulty was experienced in quietening the bevel-gear owing to the comparatively high speed at which it was run. Its removal to the back axle, with the introduction of the live axle, rendered the problem not quite so difficult, but it has still been found a very serious one. It has also been found extremely difficult to prevent the teeth of the bevel-gears from warping during hardening. Here again great improvements have been made by the adoption of a process for the local hardening of the teeth, leaving the disc of the wheel soft, and by making the back-axle as compact and rigid as possible. The fact remains, however, that no spur or bevel-drive in the transmission of an automobile ever gives absolute silence, although by the methods mentioned above the noise can be considerably reduced.

For this reason there is a tendency towards the adoption of worm-gear, which has been delayed in many cases by the fear that this would be less efficient than the bevel-gear. In some instances where it has not been carefully designed, this has certainly been so, but some recent experiments carried out in America have proved that the difference in the efficiency of the two types of gear is negligible where properly designed gears are used.

One of the peculiarities of modern design is that, whereas chain-drive has almost disappeared in the transmission of the ordinary pleasure car designed to carry from two to six persons, it is certainly still the most popular for heavy commercial cars designed to take loads of one ton and upwards, and the reasons for this have so often been given that it is hardly necessary for me to remind you that it is due to the difficulty of obtaining the necessary reduction in the gear, which it is not possible to make in a single pair of bevel wheels.

For heavy lorries worm-gear does not seem to be making the progress which at one time appeared likely, and the probable reason for this is to be found in the difficulty in providing efficient lubrication to the rubbing surfaces of the wheel where the pressures are necessarily high. This difficulty is, of course, not insurmountable, and it may very probably be found that forced lubrication will overcome it.

One great advantage of chain-drive is the excellent clearance which it provides under the rear axle.

Another source of noise has been found in the joints connecting the engine to the gear-box, and in those connecting the gear-box to the back axle. The release of the clutch, or the reversal of the torque immediately causes relative movement at any point in the drive where there is backlash, and until the last few years the design of universal-joints was such that very often considerable wear took place. With proper surfaces and lubrication this trouble has ceased to occur in the better class of chassis.

At first sight it would appear almost impossible to devise a silent and efficient mechanical drive between two such parts as the gear box and the live axle of a modern car, having regard to the fact that the two shafts to be connected, although they appear on the drawing board to have the same axis, are never more than momentarily in line when the car is in motion, owing to the irregularities in the road.

One of the chief causes of the unpleasant odours emanating from the automobile in the early days of the movement was the imperfect mixture, resulting in the products of the partial combustion, including the deadly carbon monoxide, being expelled into the atmosphere.

With modern carburettors, the variations of which are innumerable, there should be no excuse for any emission of unpleasant exhaust. At the same time it must be stated that a good many cars are run to-day with a much richer mixture than is necessary for perfect combustion. It is well known that a certain percentage of mixture too rich for perfect combustion gives slightly more power than the perfect mixture, but the gain is so slight that it is certainly not worth using for any but racing purposes, and it has the further disadvantage of increasing the tendency to carbon deposit.

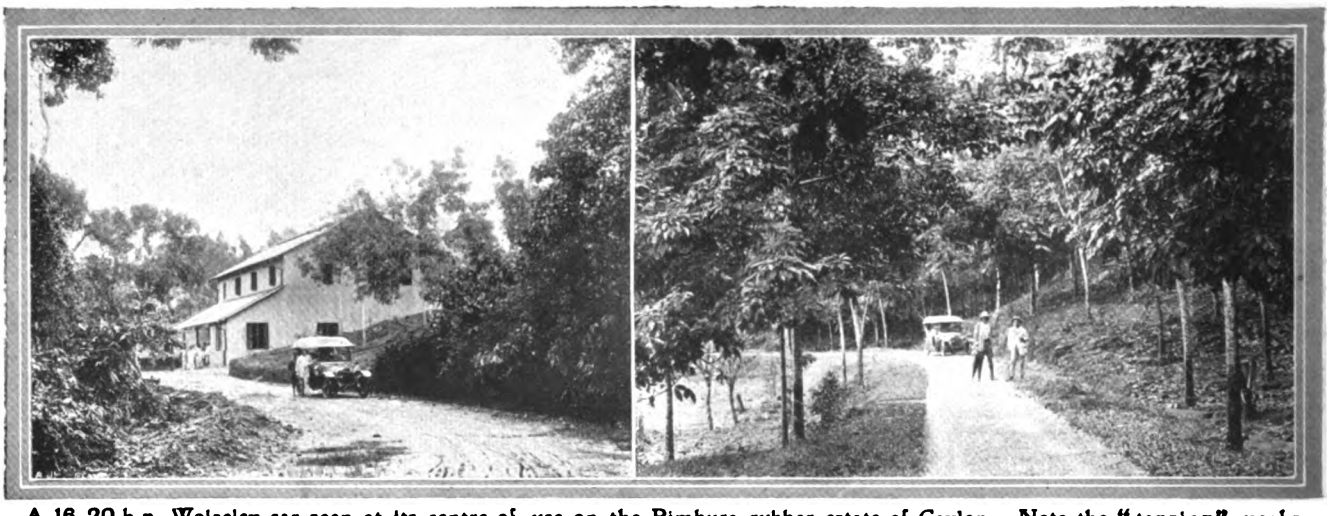
To go carefully through the various detailed improvements which have been made is manifestly impossible in the short space of time at our disposal, and so I have just picked out a few of the most interesting points which have occurred to me in connection with the removal of the more serious disadvantages appertaining to the early automobile, and which have been found the most difficult to overcome, namely, those of noise and smell, so aptly referred to by Sir Frederick Bramwell.

A B.I.C. Dinner.

BY way of celebrating the return of the British International Trophy to this country, the Royal Motor Yacht Club is entertaining Mr. E. Mackay Edgar, the owner of the winning boat, "Maple Leaf IV," at dinner at the Royal Automobile Club on Wednesday next. Admiral Lord Charles Beresford, G.C.B., G.C.V.O., M.P., Commodore of the Club, will preside. Subsequent to the dinner pictures of the races for the trophy will be shown on the bioscope.

A Motor-Driven T.B.D.

THE British Navy will soon include a torpedo boat destroyer fitted with Diesel engines, as the "Hardy," which was launched from the Thornycroft yard at Southampton last week, should be handed over in about a couple of months' time. For her full speed of 32 knots, the vessel will be driven by steam turbines, but the Diesel oil engines will be relied on for cruising and for any work for which only moderate speeds are required.



A 16-20-h.p. Wolseley car seen at its centre of use on the Pimbura rubber estate of Ceylon. Note the "tapping" marks on the rubber trees in the right-hand photograph.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. Rupert Guinness, C.M.G., M.P.

Vice-Presidents.—Hon. Arthur Stanley, M.V.O., M.P.; John Cates, Esq.; S. F. Edge, Esq.

Trustees.
Messrs. P. L. H. Dodson, A. F. Easton, H. Pye, J. H. Curson, C. W. Nairne.

Chairman of Committee.—Mr. A. J. Allison.
Deputy.—Mr. A. Holmes.
General Secretary.
Arthur Sexton, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee, Messrs. Darmaros, Rawson, Tipper, Kahn, Moores, Holland No. 2, Dean, Shaw and Emmerson.

The minutes of the previous meeting were read and confirmed.

The increased number of applications for membership was much appreciated by the committee.

Legal Department.

Application for legal aid was made by member No. 229, summoned for exceeding the speed limit at South End, Croydon. The member being in benefit, the application was granted.

Clubroom.

The programme for the winter season was discussed at length, and it was decided to invite the members of Messrs. Oates, Wimbledon Garage Club, to a friendly meeting on Wednesday, October 23rd. Members are requested to attend, and give the Wimbledon boys a real hearty welcome. During the evening it is intended to contest billiards, draughts, and card games, also to arrange the billiard tournament for the silver cup presented to the Society by Mr. J. Cates, to be contested for by kindred societies and garage clubs.

The secretary reported that the affiliated approved section was progressing beyond all expectation.

A general discussion as to future organisation took place, and some very useful suggestions were submitted for further consideration at the next meeting.

Review of Events.

Members will read with satisfaction the long list of the new members, and this despite the many efforts being made to induce chauffeurs to form a new society. Practical men are asking when they read the new book issued by the Society, why there is any need for another society when there is in existence one which most zealously guards the interests of chauffeurs. A club for allied trades would probably be most successful, but one run under the misleading title of a chauffeurs' club will, I am afraid, be detrimental to the aspirations of those responsible for the undertaking.

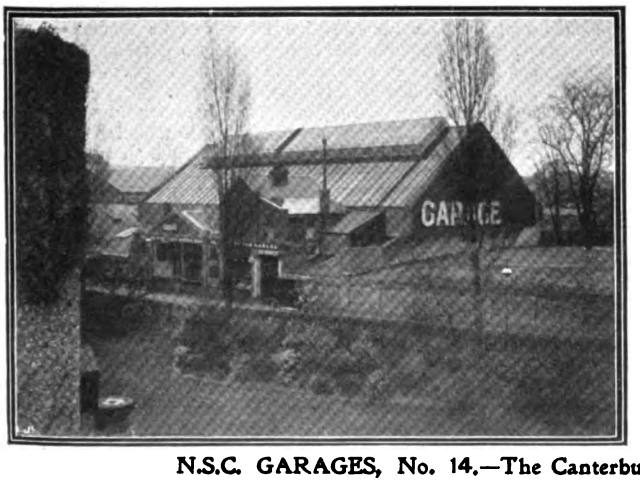
The handbook issued to members has been most favourably received by members and by the motoring press. Letters have also been received from chauffeurs (non-members) asking the price of the book commented upon by the Press. This is very encouraging and is full payment for the work entailed in compiling the booklet. Mr. Kahn and your secretary bow their acknowledgments, with thanks to Messrs. Wilson and Co., of Clerkenwell, for their successful efforts as printers and publishers of the first book issued for chauffeurs. You may take it that the N.S.C. means for the chauffeur what the R.A.C. means for the owner

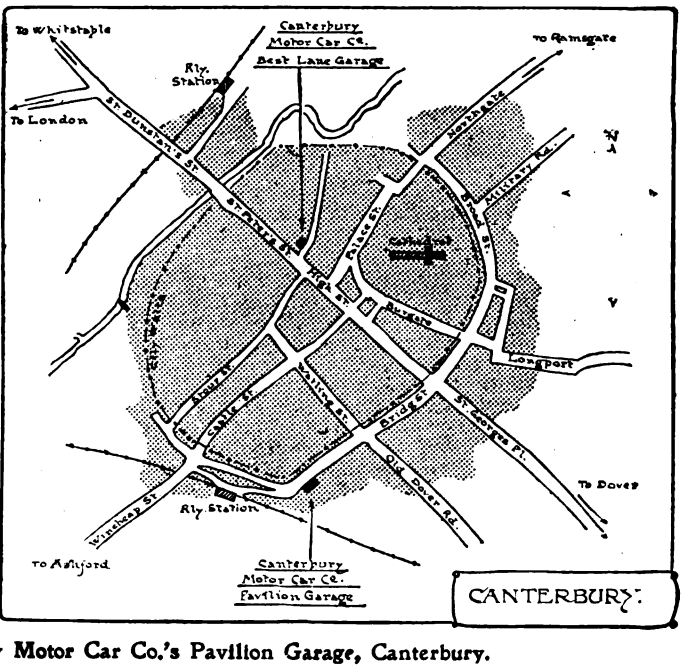
Accepted for Membership.

R. J. A. Allison, London, W.	William R. Gibb, Dundee
Arthur West, London, S.W.	Hubert Mustoe, Great Missenden
Ernest Elsdon, York	William A. Turner, London, W.
Archibald Mills, Guildford	Philip Withill, London, S.W.
Arthur G. Manning, London, W.	Edward J. Price, London, W.
F. V. Thrussell, London, W.	Will Gatling, Raynes Park
Edwin C. F. Young, Raynes Park	William J. Fenn, London, N.W.
Albert E. Cutter, London, S.W.	

Applications for Membership.

Henry D. Thorpe, Twickenham	W. G. R. Begg, New Galloway
Henry Russell, London, S.W.	P. Chamberlain, London, S.W.
Emil H. Menne, Hampton Hill	Walter Woodward, Bowness-on-Windermere
Walter Payne, London, N.W.	
William Baugh, Chester	George P. Tillyer, London, S.W.
W. P. Newman, London, S.W.	Charles H. Peck, London, S.W.
William Sutton, London, S.W.	James A. Cleveley, London, W.
Louis Morin, London, N.	John W. Lewis, Parton, N.B.
F. E. Dalby, London, S.W.	Leo Willey, Penrith
Walter W. Hubber, London, S.W.	James E. Digance, Worcester
Charles H. Harvey, Wokingham	Percy G. Gare, London, S.E.





N.S.C. GARAGES, No. 14.—The Canterbury Motor Car Co.'s Pavilion Garage, Canterbury.

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Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally. ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed

Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.

CARS AT OLYMPIA AND 1913 MODELS.

Arrol-Johnston Cars—The Olympia exhibit of Messrs. Arrol-Johnston, Ltd., of Paisley (Stand 61), will consist of a 15·9-h.p. chassis, the price of which is £340, and an 11·9-h.p. chassis which sells at £265. Three complete cars will also be shown—viz., a 15·9-h.p. five-seated open touring car, painted grey with dark grey mouldings and lines, and grey leather upholstery. It will be fitted with 815 by 105 mm. Dunlop tyres and spare wheel complete with tyre. The price of the complete car is £395.

A 15·9-h.p. cabriolet to seat seven, including the driver. Painted dark blue with black mouldings and light blue lines and upholstered in grey cloth. The price of this car, complete with five Dunlop tyres 820 by 120 mm. and spare wheel will be £565.

There will also be an 11·9-h.p. four-seater open touring car, painted dark green with black mouldings and light green lines and upholstered in green leather. Fitted with five 760 by 90 mm. Dunlop tyres and spare wheel, the car is offered at the popular price of £285.

Bentall Cars.—Messrs. E. H. Bentall and Co., Ltd., of Malden, Essex, inform us that their 1912 models have given such all-round satisfaction that no alterations will be made in the cars produced for the ensuing year.

Brenna Cars.—Messrs. Seale and de Becker, Ltd., of 162, Great Portland Street, W., who are the sole concessionaires for Brenna cars in this country, we understand will show two cars, which differ to some extent from their 1912 models. The first is of the well-known 12-14-h.p. type, which while retaining all the sound features of the older chassis, has now a new monobloc engine of 70 by 100 mm. The efficiency of this motor is considerably in excess of the present type, and its leading features are thermo-syphon cooling and Bosch magneto with automatic advance. Lubrication is by pressure-pump. The car complete with "Prince Henry" detachable rims, two-seater body with hood and screen is offered at the price of £260, while the four-seater with similar equipment costs £275. The second car, which comes under the popular 15·9-h.p. class, is a new departure. The design closely follows that of the smaller model. The body work of this car is interesting, in so far as it is fitted with a wind-guard behind the front seats, very much on the lines of a scuttle-dash. Completely equipped with hood, screen, three lamps, horn, and seven-seater side-entrance body, it sells at the remarkably low price of £330. A two-seater body fitted to the same chassis and similarly equipped is supplied at £315; it should appeal strongly to those in search of a powerful car of striking appearance at a low figure. Particular attention has been paid to the springing of the Brenna models, and an ample kit of tools is included in the above-mentioned prices.

Everitt Gascoine Cars.—The speciality for 1913 of the Everitt Gascoine Co., of 89, Wigmore Street, London, W., who are the sole concessionaires for the well-known Everitt automobiles, which are of American manufacture, will be a 6-cyl. car, equipped with an engine of 4 ins. bore by 4¾ ins. stroke, three speeds forward and a reverse. A special feature of this car will be an electric self-starter and electric lighting outfit. Complete with English-type touring body, wind-screen, hood and side curtains, detachable rims and speedometer, the car will be offered to the public at £510. In addition to this, two smaller models will also be available, ranging in price from £200 upwards. As the Company has been unable to secure space at Olympia, they will make special display of a complete range of their models during Show week at the above address.

Fiat Cars.—Fiat Motors, Ltd. (37 and 38, Long Acre, London, W.C.) present models have been so successful that very few modifications have been found necessary for 1913. Their light 15-h.p. chassis, with a bore and stroke of 80 by 130 mm., will be replaced by a 15-20-h.p. model, which will be equipped with an engine of 80 by 140 mm.; 815 by 105 mm. Michelin tyres will be fitted, and the price of the chassis will remain at £365.

The 20-30-h.p. chassis will have a slightly larger engine of 100 mm. bore, instead of 95 mm. in the 1912 model. Larger wheels, viz., 880 mm. by 120 mm., will be fitted, instead of 820 mm. as heretofore. In view of this increased cost of tyres, the chassis price had to be raised to £515.

N.S.U. Cars.—The N.S.U. Motor Co., Ltd., of 186, Great Portland Street, will not show at Olympia, but during the Show week their new 1913 models will be exhibited at their showrooms at the above address. Five types of 4-cyl. chassis, fitted with 2, 4 and 6-seater bodies, ranging from £210 to £770, will be on view, viz., 10-12 h.p. (70 mm. by 78 mm.), 14-h.p. (75 mm. by 88 mm.), 18-h.p. (80 mm. by 104 mm.), 20-h.p. (85 mm. by 115 mm.), 24-h.p. (97 mm. by 115 mm.).

Straker-Squire Cars.—Messrs. Sidney Straker and Squire, Ltd., of 75, Shaftesbury Avenue, London, W., will during the year 1913 adhere to their policy, which has proved so successful during the past five seasons—namely, that of concentrating their attention upon the manufacture of but one model. Their 15-h.p. car has proved itself so satisfactory both in competitions and in everyday service that only improvements of minor importance have been considered necessary. The chief alterations are increased size of both brakes, and a provision of an accessibly-placed finger adjustment instead of the turnbuckle on the old model. In the engine the alterations chiefly consist in the increased efficiency of the cooling system by fitting a larger radiator, bigger fan, and water pipes of larger diameter. Supplementary springs have been placed under the clutch leather to ensure smooth and progressive engagement. A taper bonnet is supplied with the runabout model, and the side levers have been arranged so as to come inside the body panel. On their stand, No. 89, at Olympia, they will have on view a 15-h.p. polished chassis, one 15-h.p. cabriolet, which is built specially for the requirements of owner drivers, and provides ample leg room for the occupants of the front seats, without in any way detracting from the comfort of the passengers on the rear seats. The car is painted French grey, with green lines, and is upholstered in green leather. There will also be a 15-h.p. two-seater runabout, with taper bonnet, scuttle dash and Victoria hood, which latter can be erected or folded down without the inconvenience of having to get out of the car. There is ample accommodation for luggage and spares at the rear, and fittings are provided for a folding dicky seat.

As this is the sixth year during which the manufacturers have concentrated their whole attention to this 15-h.p. model, it will easily be believed that they have brought it to a very high pitch of perfection, and for this reason the car is likely to attract considerable attention during the 1912 show.

Sunbeams.—Sunbeam cars, as our readers are no doubt aware, have been giving such excellent service during the past year that the whole range of models will remain unaltered during the coming season, at least as far as the chassis are concerned. The only alterations that the manufacturers have found advisable are in connection with the carriage-work. The back part of the body will in future be somewhat lower, and a sloping bonnet and dash-board will take the place of the present straight bonnet, so that the chassis are better adapted for the popular stream-line bodies. It will be remembered that the range of models marketed by the Sunbeam Motor Car Co., Ltd., of Moorfield Works, Wolverhampton, include two 4-cylinder chassis, 12-16-h.p. and 16-20-h.p., and a 6-cylinder rated at 25-30-h.p.

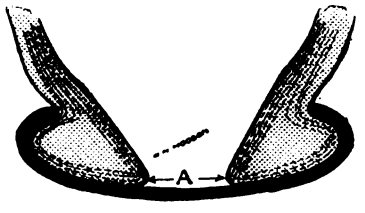
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Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

92.

QUERY CONCERNING TYRE SIZES.—I should like to ask your readers why a tyre of larger section should not be fitted to a rim intended for one of slightly smaller size. I have put a 920 by 120 mm. tyre on a rim that formerly carried a 915 by 105 mm. tyre and 935 by 135 mm. tyre on an 880 by 120 mm. rim. Curious to say, when inflated, the 920 mm. tyre on the 915 mm. rim stands the same height as the old 915 mm. tyre did, and the 935 mm. tyre on the 880 mm. rim is only about half an inch higher than the previous one, so that it makes little or no difference to the gearing.



I was warned not to fit the larger tyres, and was told their beads would overlap and pinch the tube and do all sorts of mischief, but I have found that this is not so. I have also found that on a 105 mm. tyre when in place there is nearly an inch of space marked A in the sketch between the tips of the beads, and a 120 mm. tyre on the same rim has very nearly the same clearance there. Considering this ample space, it occurs to me that it is almost useless to even cut the usual valve hole into the bead of the cover.

The reason for my writing this is to find out, if possible, whether any other chauffeurs have tried fitting larger sized tyres to rims of smaller size and diameter, and if so whether their experience with them is identical with mine. So far I have not found the least drawback from the change, for which other people predicted all sorts of troubles.—*Frank W. S. Hodson.*

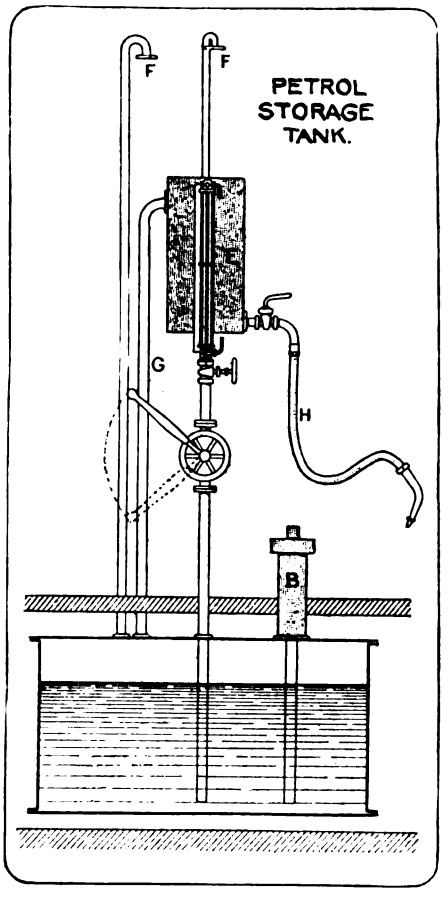
93.

CARBURETTOR EXPERIENCE.—Here is an experience, which I had with the carburettor of my 18-h.p. De Dietrich car, which might be interesting to other chauffeurs. Some time ago I was unfortunate in dropping a spanner, which hit the top of the float-chamber and jammed the needle down on its seating, with the result that the edge of the seating got burred and the carburettor flooded in consequence. In the De Dietrich carburettor, the needle valve-seating is detachable; it is screwed into the bottom of the float-chamber from underneath, and in this way forms a very convenient means of adjusting the petrol level. After that little accident, of course, I took the seating out and smoothed it off by rubbing it on a sheet of emery paper. Although this took the burr off the edge and apparently restored a good seating when tried on the needle, sufficient metal had been removed from the top of the seating to prevent the needle from shutting off the petrol soon enough when the carburettor was assembled, with the result that it still flooded to a certain extent. This I cured by interposing a leather washer of about half the thickness of the existing one between the float-chamber and the screw which forms the seating. This allowed the valve-seating to be screwed up a little higher, and to all intents and purposes restored the original petrol level, because after this the engine pulled very well indeed, and ran as smoothly as it ever did before. A week or two afterwards I went on a long cross-country journey, which included several hills where it is necessary to change down, and also one or two stretches where one can let the car out. All went well until I came to the first hill, and soon after I had changed down to third gear, and opened the throttle fully, the engine picked up for a moment, but once it had attained a fairly high engine speed, the power suddenly failed, just as if something had gone wrong with the petrol supply. I changed down to second gear, the engine immediately picked up the drive and finished the climb without further difficulty. A similar thing happened soon afterwards, when I increased speed on a level piece of straight road. She accelerated pretty quickly to about 36 m.p.h., and then the power dropped off exactly as it had done on the hill. This time I stopped and had a good look round, but there was nothing wrong with the engine; there was plenty of petrol in the carburettor, and the jet was quite free. As the engine ran perfectly well at ordinary speeds, and appeared only to lose power at a certain rather high number of revolutions, I did not worry about it for the moment. However, I turned the matter over in my mind, and came to the conclusion that I might have set the needle-valve seating too fine, so that the needle, while admitting sufficient petrol for the ordinary demands of the engine, did not lift high enough to satisfy the increased suction, when extra power was called for, like on hills or high speeds on the level. The result would be that more petrol would be drawn out of the jet by the increased suction than the needle-valve would admit to the float-chamber; the level, therefore, would fall very rapidly until the float-chamber is almost empty, which, in turn, would account for the sudden falling off in power. Following this line of reasoning I replaced the thin washer by another one, only a shade thicker, which slightly increased the clearance between the needle and the seating, and I am glad to say this proved entirely successful, because my car now runs quite as fast as it ever did before.—*F. Shaw.*

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FOREIGN MISCELLANY.

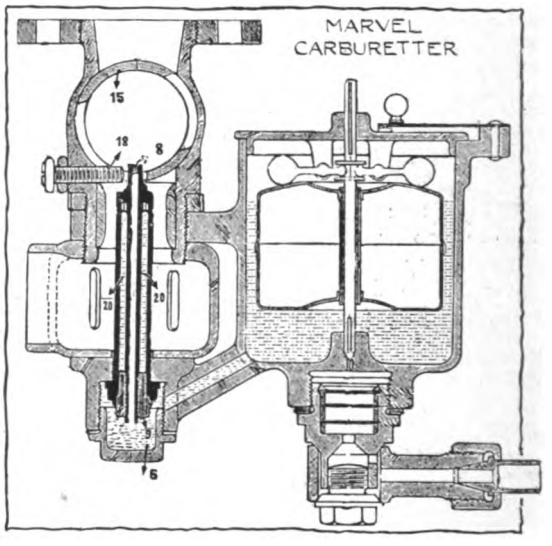
The storage of petrol.—We fear that the various strikes of the last few years have not had the desired effect of teaching the public the desirability of keeping adequate



private supplies of the precious fluid. Yet this may be done with the utmost safety by means of the underground storage tanks which can now be obtained. We illustrate a simple installation of this kind. The hand pump, of the semi-rotary type, serves to lift the petrol to the measuring vessel, E, from whence it is drawn off through the hose, H. G is an overflow pipe, and F are vents for the escape of any vapour that may be formed. B is the filler opening provided with a filter.—*Omnia.*

Public opinion.—Gauging public opinion is a simple task. It merely means to get the facts and not to base policies on hearsay or rumours. You can always get facts. Getting facts means getting to the consumer, or to someone else who has reached him, and on whose statements you can rely. So often a manufacturing firm will leave the selection of a new feature of design entirely to the engineering department. This is all right providing this department keeps rationally close to public desires, but so often the engineering department is the farthest away from the consumer, and consequently the last to dictate what shall and what shall not be in the question of car equipment. In factories where the engineering department keeps the field-glass constantly focussed on the public, it can chart its course accurately, but where the course is laid out within a four-wall room, without due consideration being given to the outside, it is certain that mistakes will be made, that changes will be made before the season is over, and that in every case the maker will have to pay for the experience. It is in furnishing the engineering department with the real facts on the consumer, that the sales and maintenance departments assert their rights to be factors in determining what shall and what shall not be incorporated in a new model. It is as an umpire of these various departments that the factory heads must sit and pass final judgment. By this programme of design the manufacturer can be assured of selling at his entire output.—*Motor Age.*

The Marvel carburettor.—This device, which is of German origin, is of the concentric jet type. The central jet, 8, passes through a narrow slot in the rotating



sleeve-throttle, 15, the area of this slot being adjustable by means of the screw, 18. At starting, therefore, the air is drawn through this slot past the central jet and so passes to the cylinders. On opening up the throttle a number of small jet orifices, situated in a ring around the central one, are brought into action; these small jets draw their fuel from the annular chamber, 20, which in turn receives its supply from the chamber, 6, through the calibrated opening, 9. For starting or accelerating purposes, therefore, the whole of the petrol contained in chamber, 20, is available, in addition to that flowing from the central jet, 8; but though the output of the latter jet will continue to increase as the speed rises, the petrol flowing from the ring of jets will depend on the size of the opening, 9, and is considerably less than the momentary starting output from the chamber, 20. The result, then, is that at first the mixture is rich to promote easy starting, and decreases in richness automatically as the speed increases.—*Automobil Welt.*

The law imposing heavy taxes on advertisement boards displayed along the roadside, which was recently introduced in France, seems likely to have some unexpected results. A legal writer in *Omnia* points out that the wording ("notices of all sorts") is so general that it will be found to apply equally to road-side notices as to speed limitations, dangerous corners, crossings, &c. It appears, further, that prosecutions under this law are of the nature of, what are with us called, "penal actions" in which, part or the whole of the sum recovered (or fine) goes to the "common informer"; in the case under discussion this sum seems to be a quarter. This state of things does not appear to be a very cheerful outlook for the French equivalent to our A.A.

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RACES, RECORDS, AND TRIALS.

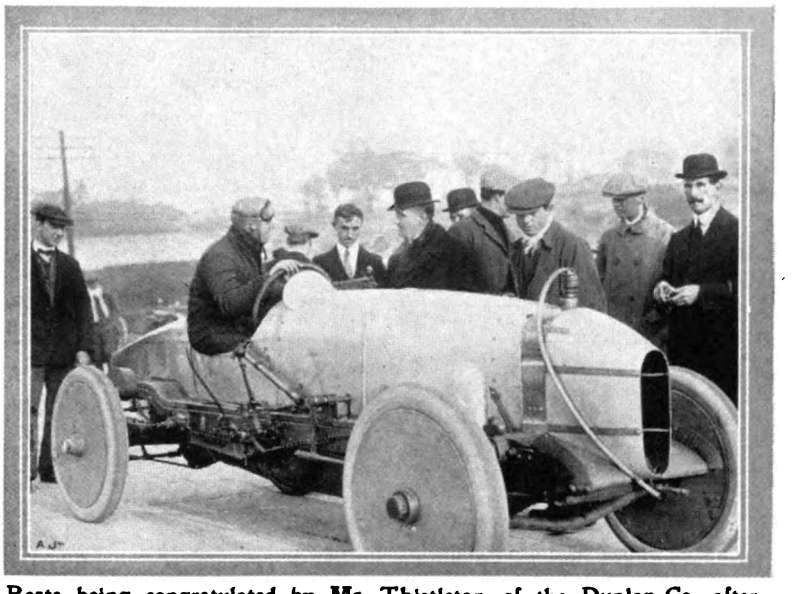
More Sunbeam Records.

UNSATISFIED by the large number of records garnered by the Sunbeam cars at Brooklands recently, Mr. Louis Coatalen arranged for Resta on the 15·9-h.p. Sunbeam, on Wednesday of last week to attack the records in the 16 R.A.C. rating class, Brooklands, which stood to the credit of the 15·6-h.p. Vauxhall. The engine was the same as that used in the recent capture of the 1,000 mile record, but the body of the car was a little more streamline in form; a nose had been added to the radiator and discs were fitted to the wheels. The start was made at 3.5 p.m., and the car soon got into a very fast stride, the first lap from a standing start was covered at 86 miles an hour, while during the second round the average speed was increased to 96 miles an hour.

The car ran with remarkable regularity, as can be judged by the fact that the fastest and slowest laps were 1 m. 44⅕ s. and 1 m. 46⅖ s. respectively, a difference of only 2⅖ s. On the completion of the ten laps, Resta had the satisfaction of knowing that he had not only beaten the ten-lap record, but also records for the half mile, kilometre, and mile. The new records are as follows, and the speeds represented by the old Vauxhall records are shown in brackets.

	secs.	m.p.h.	m.p.h.
Half-mile, flying start ...	17·67	101·87	(97·67)
Kilometre, flying start ...	22·16	100·94	(96·67)
Mile, flying start ...	36·20	99·45	(94·91)
10 laps, standing start ...	17m. 42·51s.	93·84	(91·46)

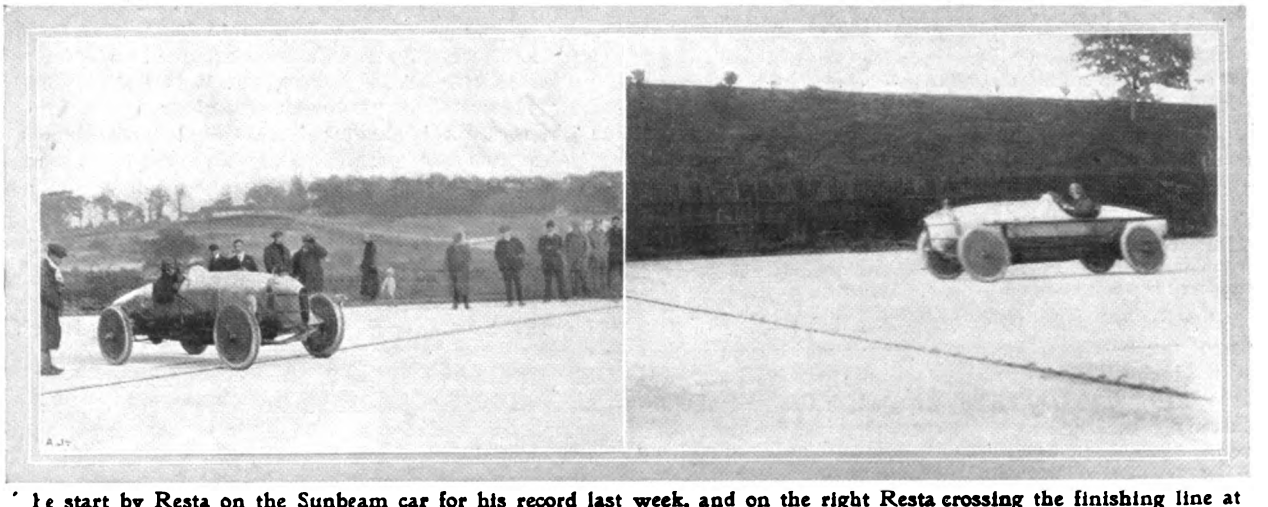
It is not without interest to compare the records with the O'Gorman Trophy race which was over practically the same distance. In that the average speed of the winning 20·1-h.p. Vauxhall was 92½ m.p.h. so that the 15·9 Sunbeam exceeded this by over a mile per hour. Those who were privileged to see the records made witnessed a most remarkable exhibition of driving by Mr. Resta and the way he kept the little car—she weighs but 2,180 lbs.—up to her work, was little short of marvellous and stamped the driver as an absolute master of the art. As in the previous records the car was fitted with Dunlop tyres and Bosch magnetos and used Shell motor spirit and Wakefield "Castrol" with the happiest results.



Resta being congratulated by Mr. Thistleton, of the Dunlop Co., after the finish of his record last week on the Sunbeam car at Brooklands. Mr. Coatalen, in the scarf, is standing by, and Mr. R. F. L. Crossman is behind in the sweater.

Sunbeams Secure Hour Record.

ON Tuesday, on the 30-h.p. six-cylinder Sunbeam, Mr. D. Resta succeeded in capturing the world's records for the hour and 100 miles. They have stood for about three years since they were made by Mr. C. M. Smith, driving Mr. R. Warriner's 60-h.p. six-cylinder Thames. In the hour Resta covered 92 miles 797 yards, about three miles better than the old record, while his time for 100 miles was 1h. 4m. 51·16s., giving an average speed of 92·52 m.p.h.



The start by Resta on the Sunbeam car for his record last week, and on the right Resta crossing the finishing line at approximately 100 m.p.h.

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Hazlewood Hill-Climb.

ARRANGEMENTS have been made by the Derbyshire and North Stafford A.C. for the holding of their annual open hill-climb at Hazlewood Hill, about five miles from Derby, on Wednesday next the 23rd inst. There are four open classes, three in which the classification is by horse-power and one for the fastest time, and there is also a closed event for members of the Derby and N. Staffs Club. Entries close to-day, Saturday, and should be sent to Mr. H. Jefferson, Albert Street, Derby.

New Motor Cycle Records.

ON his Regal motor cycle, fitted with a Green engine, and with a side-car and passenger, S. F. Garrett, on Friday of last week, beat the Class C records for one and two hours. In one hour he covered 46 miles 1,333 yards, while in two hours he covered 86 miles 115 yards.

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CURRENT ITEMS OF INTEREST.

Army and Mechanical Transport.

IT is hoped that this month will see the completion of the reorganisation of the transport service of the Army Service Corps of the British Army, when it will be provided with a mechanical transport section which it is said will be more complete than that attached to any other army in the world. The Mechanical Transport Service will include four companies at Bulford, seven at Aldershot, including one Depôt Company, one each at Portsmouth, Chatham, Woolwich, Dublin and Cork, and two at the Curragh. Consequent on the formation of these 18 mechanical transport companies, the number of horsed companies have been reduced, and half a dozen, in fact, will disappear this month. In addition to the motors with the regular army, the subsidized motor lorries and the special reserve of drivers and cleaners are being thoroughly organised.

Municipalities in Conference.

TWO subjects came in for attention at the Autumn General Meeting of the Association of Municipal Corporations at the Guildhall, London, on Friday of last week. One was the "Mental Deficiency Bill" and the other, curiously enough, was "heavy motor traffic," the latter subject being introduced by the Town Clerk of Richmond. The resolutions passed at the recent Conference were considered and passed in a somewhat altered form as follows:—

(1) That the Government be asked to introduce a proviso in next year's Finance Bill to the effect that in future the proceeds of the petrol tax or any other special tax or charge levied on or in connection with heavy vehicles mechanically propelled, less some small percentage representing the cost of administration, should be paid over to the local authorities on whose roads these vehicles run, in proportion to the use made by such vehicles of the roads.

(2) That it is urgently necessary, having regard to the increased cost of road maintenance, the risk of serious accidents, the detriment to property, and the loss and inconvenience to tradesmen and others, arising from the use of motor omnibuses on highways, which in the judgment of the local authority are unsuited for traffic of this description, that requisite powers should be conferred upon the local authorities charged with the duty of maintaining and repairing the highways (subject to an appeal to the Local Government Board) to limit and define the routes to be taken by such traffic.

(3) That these matters be referred to the Council to take such action in support thereof as they may deem requisite and to generally consider the whole question.

The canard about the Road Board hoarding of the petrol tax proceeds for some gigantic and heroic system of road construction in some remote part of the British Isles, had to be dished up again, while the general complaint against the motor 'bus was that it did not pay one penny towards the cost of maintenance of the roads over which it ran. It was argued that as motor omnibus traffic was local in character, it was unfair that the money raised by the petrol tax should go towards providing main roads which most people did not want and which local authorities agreed were not necessary.

N.A.G. Cars to the Fore.

THE automobiles built by the well-known German N.A.G. Co., are now under far more favourable circumstances in England than heretofore, a British company having been formed under the ægis of the powerful German concern to develop the English business on progressive lines. The first move has been the opening of commodious but unpretentious showrooms in Great Marlborough Street, one of the earliest and most conveniently situated of the automobile centres in London. In common with most large firms, the manufacturers are prepared to meet all requirements by a very extensive range of models, and not only does this apply to pleasure vehicles but a very successful line of commercial cars has also been instituted.

A Real Motorists' Soap.

A thoroughly useful soap for motorists and others who get their hands dirty with oily machinery has been put on the market by Messrs. McNae, who sell a sample box of three tablets for 1s. It is one of the best soaps for the purpose we have ever tried, for it seems to have the property of cleaning the hands without scouring them with grit or leaving them with an odour. It can be used with cold water as effectively as with hot water, and it is a quick acting and cleanly preparation when used with either. Moreover, another advantage of soap in the ordinary tablet form is that it is economical and convenient to be carried on a car. Try it and see.

Drive Slowly in Ipswich, Thetford, &c.

AT the principle entrances to Mansfield, Ipswich, and Thetford, the R.A.C. have arranged to erect their "Please Drive Slowly" signs, and it is hoped they will be "observed" by motorists, especially a few, who, by their reckless behaviour have called forth threats of applications for speed limit. The road and traffic conditions through each of these towns necessitate the exercise of particular care in driving.

Suggested Improvement in Cheshire.

MIDDLEWICH, in Cheshire, has a High Street, but like many another thoroughfare bearing that name in country places, it is narrow and tortuous. It has to carry a lot of "through" traffic, and the Lancashire and Cheshire centre of the R.I.A. has under consideration a scheme for the construction of a new road which would enable this traffic to avoid the town. Although the new road would only be about half a mile in length it would obviate passing several narrow and dangerous corners, also an awkward bridge, and would be a "relief" road in more senses than one.

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Tramline Death Traps.

IN the motor 'bus *versus* tram controversy, the municipal authorities which own trams have done a good deal of shouting about the expense entailed in keeping in good repair that section of the road disfigured by their tramlines, although it is well known to those who use the roads that the tramlines are in many cases allowed to remain a considerable distance above the level of the roadway. At an inquest on a carman, who met his death by being crushed between his own and another van, through the defective state of the L.C.C. tramlines, at Old Street, Shoreditch, a police constable said there was a bad join in the lines, one line being half an inch higher than the other. An L.C.C. expert witness thought differently, and said the road was not at all in a bad condition and would be repaired when it had had sufficient wear. This led the Coroner to take a hand in the discussion, he remarking, "Then you are going to let the road get a little worse, so that we can have one or two more cases here." The jury added to their verdict of "Accidental Death," a rider attaching no blame to the driver of the van, they considering death was caused by the defective state of the tramlines.

The 10-h.p. Austin Car.

AN unfortunate misprint occurred in our special correspondent's report of a recent speed trial in South Africa, where the 10-h.p. Austin is referred to as being 10–28-h.p. rating. As our readers know, there is not such a car turned out from the Austin works, the victorious machine (although it *does* put up such fine performances) being their standard 10-h.p. model, as was correctly stated under the illustration thereof that appeared in the same issue.

A New Bosch Book.

THE Bosch Magneto Co., Ltd., have just issued a booklet giving details and coloured sections of their Z.U. 4 type magneto which is now fitted to by far the largest number of four-cylinder engines. By the aid of this booklet, any motorist should be able to get a very good understanding of the magneto, and as the principle of all the "Z" type machines is the same, the one booklet suffices for all. The price is 1*s*., and copies can be obtained from the Bosch Magneto Co., Ltd., 40–42, Newman Street, London, W.

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LEGAL INTELLIGENCE.

Taxi-Cab Owners and Rank Attendants.

AN important point concerning the liabilities of taxi-cab owners for the actions of cab-rank attendants was decided by His Honour Judge Woodfall at the Westminster County Court last week. Messrs. Smith and Sons, tailors, claimed £22 5*s*. from the Gamage-Bell Motor Cab Co., Ltd., for damage to their shop window by a runaway taxi-cab.

Mr. Stuart Bevan, for the plaintiffs, said it was customary at night for taxi-cabs to assemble on a rank near to the Lyceum Theatre, in Wellington Street, Strand. On May 24th the driver of a cab belonging to the defendants went to the rank and temporarily left his vehicle. Almost immediately the vehicle commenced to move, and although a man named Bowen jumped on the footboard and endeavoured to apply the brakes, it ran across the Strand and crashed into the plaintiffs' shop, doing considerable damage.

Mr. R. B. Gibbons, for the defence, argued that the taxi was started by Bowen, and that Bowen, not being a servant or agent of the defendants, they could not be held responsible for the damage done.

His honour said a strong point of the defence was that the man who was left to look after the cab on the rank was neither a servant nor an agent of the defendants, and that he was not known to them. That, to his mind, was perfectly immaterial. The defendants knew that their drivers left certain individuals to look after their vehicles at periods of the day, and if such persons were unskilled, that did not relieve the owners of the cab of the responsibility. In his opinion the plaintiffs were entitled to recover the amount claimed, and he gave judgment accordingly, with costs.

ROUNDABOUT NOTES.

THOSE who are on the look-out for a cheap car might look in at the showrooms of Mr. J. M. Roberts, 12–14, Semley Place, Victoria, S.W., who is disposing of some fifty 14–16-h.p. Darracq cab landaulettes at £160 each. We understand the cars are mechanically perfect.

TESTIMONY as to the reliability of the 20-h.p. Humber is forthcoming in a letter from the secretary of the Auto-Cycle Union, who utilised one in carrying officials, &c., in connection with the recent A.C.U. trials. Summed up briefly, the car covered over a thousand miles of very difficult country, and in exceptionally bad weather, without an involuntary stop, and on no occasion was it the cause of any delay.

MESSRS. SPYKER CARS have just produced a special 16-h.p. Spyker landaulette for doctors' use. The back panel of the body is divided, and one side can be let down so that a stretcher can be slid in over a special system of rollers. For ordinary use the car is a landaulette with enclosed steering wheel, seating two persons in front and two at the back.

THE splendid success of the Austin engines in "Maple Leaf IV" gives point to the issue of a new catalogue of the Marine Department of the Austin Motor Co. The catalogue is beautifully got up, and gives full particulars of the Austin sets, which range from a single-cylinder 2½-h.p. motor to the 6-cylinder 60-h.p. type. Any marine motorists who wish to get further particulars should call at the London headquarters of the Austin Co. at 479–483, Oxford Street, W., where Mr. T. D. Wynn Weston will gladly give any information on the subject.

TO those who are thinking of taking up commercial motors, a catalogue of special interest is that issued by the Maudslay Motor Co., which besides giving details of the various models has some tables of approximate running costs for 1½ ton, 2 ton, 3, 4 and 5 ton vehicles, over various mileages. Copies of the catalogue can be obtained from the Maudslay Motor Co., Ltd., Parkside, Coventry.

A CLAUDEL HOBSON carburettor was fitted to the Sunbeam car which recently beat the twelve-hour record at Brooklands.

THE Annual Convention of Humber agents took place at the Humber Works, Coventry, on the 26th and 27th ult., and 135 agents turned up to view the latest models of cars, motor cycles and cycles, and at a dinner, held on the 26th, 112 accepted the directors' invitation to be present. A most satisfactory amount of business was done, and the meeting emphasized the good feeling which exists between the Company and its many agents.

EVERY department at the Argyll motor works is so busy at present that overtime is necessary throughout. The growing demand for the new sleeve-valve engine promises an active winter at Alexandria, where it is hoped a considerable number of new cottages will be commenced at an early date.

A SPECIAL racing engine to fit the British Motor Boat Club 21-ft. class is being built by the Austin Motor Co. These engines will be ready about January, just in good time for Monte Carlo. It will be interesting to see how this motor will compare with the others on the market. From the owner's point of view, every new motor built for the class increases the sport by widening the field of choice.

ONE of the largest orders in magnetos ever placed has been received by Messrs. C. A. Vandervell and Co., the well-known specialists in electric lighting, from the Rudge-Whitworth Co., of Coventry. The order is for 6,000 magnetos, and it is, in any case, a very strong proof of the excellence of the "C.A.V.-Ruthardt" magnetos.

HIGH as the reputation of Siddeley-Deasy cars already was, it has been considerably enhanced by the 1912 models with the "Knight" sleeve-valve engine. Mr. Walter Ramsey, of Eccleshall, has a 14–20-h.p. model, and writes: "The Siddeley-Deasy car which you supplied to me in April last is giving every satisfaction, and I am more than pleased with the pulling power of the engine. For comfort, sweetness, and silence in running it could not be surpassed. Another special and very economical feature is the low consumption of petrol, together with the light wear on tyres."

WITH reference to the description of the Hispano-Suiza car which appeared in our issue of October 5th, we learn that the smart 15·9-h.p. Hispano-Suiza with torpedo body which was illustrated was supplied by the Car Clearing Bureau, of Empire House, 175—176, Piccadilly, to Abdullah Khan.

THE Star Engineering Co. has just received a fourth order from the Marconi Co. This latest purchase is a 20-h.p. 6-cylinder Star car for use as a Marconi field station, and it illustrates the adaptability of the Star car for all sorts of work.

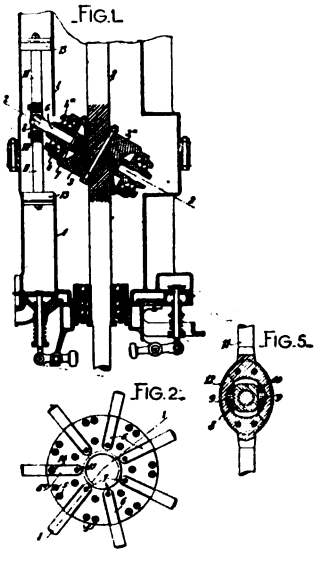
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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

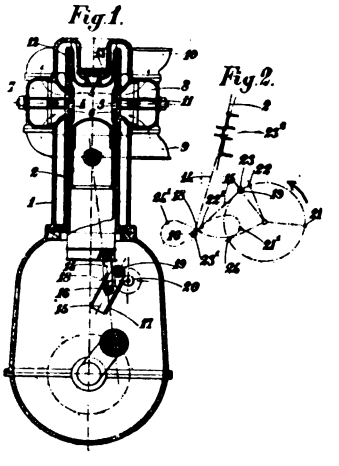
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

25,682. November 17th, 1911. Date claimed under International Convention, November 17th, 1910. Improvements in Valve Mechanism for Four-stroke-cycle Internal-combustion Engines. Theodore Lafitte, 85, rue Blomet, Paris.—In this invention there is a single slide-valve or sleeve which is concentric with the driving piston. This sleeve, which forms the distributor, is connected by a rod with a pivoted oscillating slide block and connecting-rod. Owing to this connection the slide-valve or sleeve effects a reciprocating rectilinear movement. Fig. 1 is a cross section of the motor. Fig. 2 is a diagram showing the valve movement, consisting of two loops described by the lower extremity of the rod. The sleeve, 2, slides in the cylinder, 1, and has the ports for admission and exhaust, 3 and 4. These ports are symmetrical and may open respectively to two ports, 5 and 6, formed in the cylinder opposite two double caps, 7 and 8, fixed on either side of the



motor by two studs. These caps are connected respectively by two pipes, 9 and 10, of which 9 communicates with the carburettor and 10 with the exhaust. In the cap the conduits serving for the admission and the exhaust are separated by a space, 11, in communication with the atmosphere. The admission gases are thus but slightly heated by contact with the burnt gases. At its upper extremity the sleeve, 2, is guided by the cylinder end, 12, which is fitted internally and fixed to the cylinder, 1, by means of a central nut, 13. At its lower part, the sleeve, 2, is connected by the rod, 14, with the slide-block, 15, at the point, 16; the slot, 17, which oscillates around trunnions, 18, guides the slide-block, 15, which is pivoted at 19, to the crank, 20. The rotation of the crank-pin, 19, produces the reciprocation of the slide-block, 15, in the slot, 17. The pivot-pin, 16, of the rod, 14, passes on either side of the trunnions, 18, and thus describes the 8-shaped curve represented in Fig. 2. This curve, like the circumference described by 19, is divided into four parts which correspond to the four-cycle distribution. Referring to Fig. 2, 21-22 is the exhaust angle; 22-23, angle between closing the exhaust and opening the admission; 23-24, admission angle; 24-21, compression, explosion and expansion angle. The crank-pin, 19, moves in the direction indicated by the arrow and causes the shaft, 16, of the rod, 14, to traverse the parts, 21^1-22^1, 22^1-23^1, 23^1-24^1, 24^1-21^1, corresponding to the 8-shaped curve. From 21^1 to 22^1, the pin, 16, rises, and by the intermediary of the rod, 14, lifts the sleeve, 2, causes it to open the ports, 5, and then brings it downwards and closes the exhaust. From 22^1 to 23^1 the pin, 16, continues its travel, the openings, 5 and 6, are closed, the sleeve descends rapidly, and from 23^1 to 24^1 it opens the admission ports, 6, and then the pin, 16, continuing its travel lifts the sleeve which closes the admission, 6. From 24^1 to 21^1, the pin, 16, in continuing its travel, first of all slightly lifts the sleeve, then lowers it, then lifts it again and continuing reaches at 21^1 the point of opening the exhaust ports and the cycle recommences.—September 25th, 1912.

2,783. February 2nd, 1912. Date claimed under International Convention, Feb. 2nd, 1912. Improvements in Motors. The Soc.



des Moteurs Gnome, 49, rue Lafitte, Paris. —This invention relates to improvements in crankless motors of the kind in which the cylinders are parallel to the motor shaft, which is driven by means of a double inclined abutment thereon. The invention is for the purpose of allowing two pistons connected by a rigid rod to be mounted in each cylinder. This arrangement allows of making the length of the pistons small; it thus economises space whilst, however, assuring perfect guidance. It further allows the possible utilization of both faces of each piston, that is to say, of making each piston work with a double action. Fig. 1 is a vertical section through the motor shaft on line 1–1 of Fig. 2. Fig. 2 is a view partly in section on line 2–2 of Fig. 1. Fig 5 is a detail of piston rod connection. The motor comprises several cylinders, 1, arranged at equal angles round the motor shaft, 2, and parallel to it. This shaft carries two bosses, or inclined parallel abutment plates, 3, 3*a*, keyed thereon, and between which is a central plate receiving the power of the pistons. This plate is composed of two discs, 4, 4*a*, fixed at a certain distance from one another by bolts and stays, 5. In the space formed between these discs are arranged levers, 6, of square section, arranged on equidistant radii. All these levers except one, designated by 6*a*. Fig. 2 can pivot round small axles, 7, fixed by their ends in the two discs, these axles being perpendicular to the plane of the levers, 6, and regularly spaced on a circle concentric with the discs. Each lever, 6, 6*a*, terminates outside the discs, 4, 4*a*, by a cylindrical extension, which slides in a guide or sleeve, 8. This latter is provided with two small trunnions, 9, by which it can swing in bearings, 10, housed in an opening or cage formed in the piston rod, 11. The bearings, 10, are held in this opening by two plates, 12, integral therewith respectively. The rod, 11, carries at its ends two pistons, 13, which work in cylinders, 1. The lever 6*a*, is rigidly fixed by the bolts, 14, 15, Fig. 2, between the two discs, 4, 4*a*, so as to compel a diameter of the central plate to remain always in the same plane, passing through the axis of the motor shaft. The method of mounting the other levers allows all the movements necessary for the operation of the motor.—September 25th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published October 17th, 1912.

14,749. J. A. TORRENS. Carburettors.
16,741. L. PIERARD. Double-acting I.C. engines.
18,957. A. F. BRONNER AND A. A. QUICK. Speed gear.
20,855. R. BLAKOE. Wheels.
20,989. J. BOULANGER AND — TERWAGNE. Suspension.
21,077. A. CARBONE. Rotary engines.
21,271. W. READ. Rotary engines.
21,310. F. HOPPER. Friction clutches.
22,008. W. C. PINSON AND W. R. BLAXLEY. Transmission gearing.
22,307. B. C. COX. Auxiliary springs.
22,867. F. H. TANNER. Air-starting and reversing gear.
22,906. M. VAGNE. Resilient tyre.
26,724. E. F. AND G. W. GOODYEAR. Road wheels
26,912. J. FAGARD. Carburettors.
27,103. T. J. CLARK, L. H. DYKE AND G. EDWARDS. Starting I.C. engines.
28,372. J. A. ALLISON AND O. H. SKINNER. Starting devices.
29,135. D. M. NEUBERGER. Combustion product engines.

Applied for in 1912.

Published October 17th, 1912.

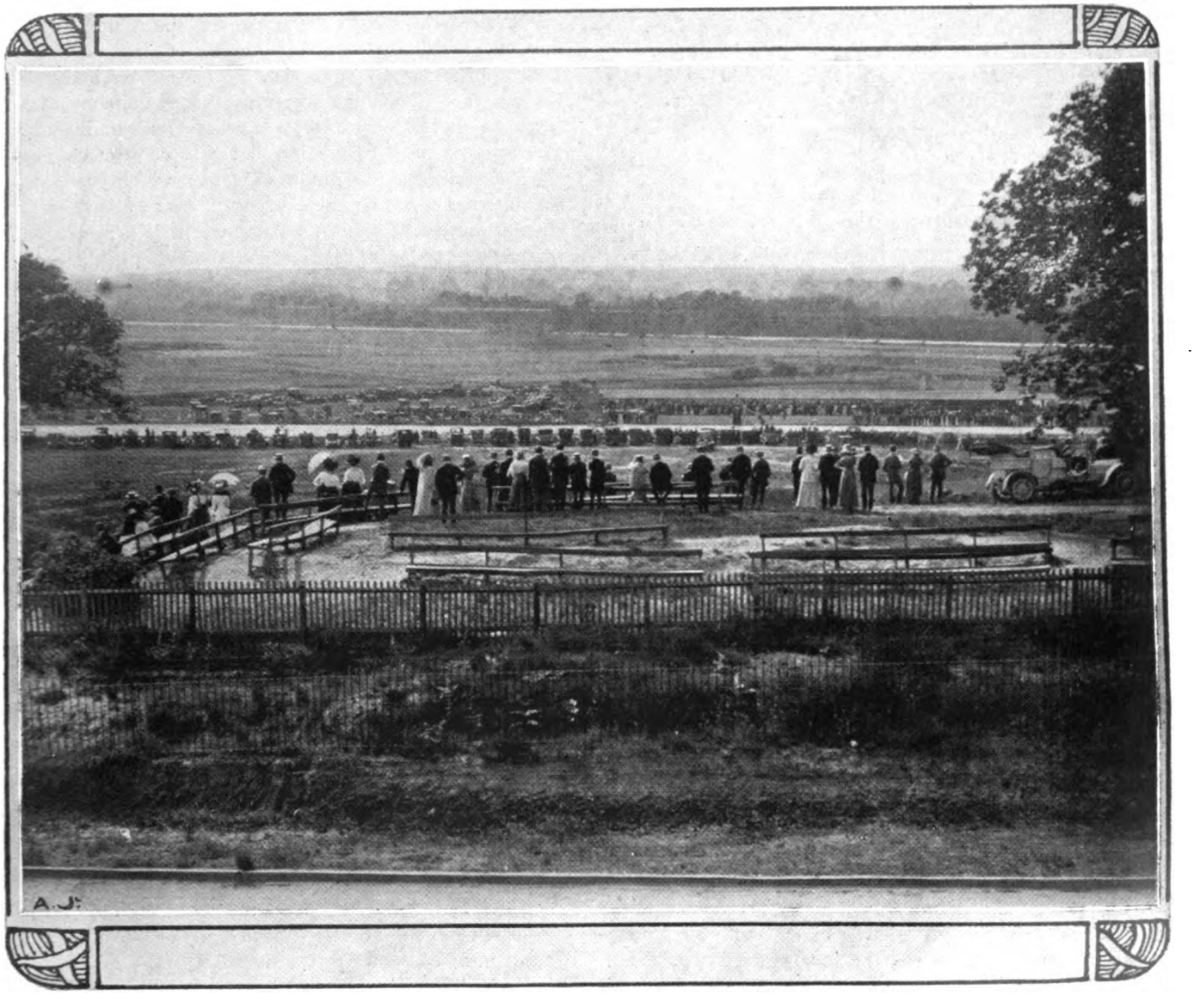
1,352. J. A. WICTOR AND G. N. VIVIER. Resilient wheels.
1,954. M. FABRE Road wheels.
2,576. J. A. HARDY. Two-stroke cycle explosion engines.
4,352. C. WEDEKIND. Liquid fuel-sprayers for I.C. engines.
4,987. P. NOLET. Combined I.C. and compressed-air engine.
5,230. E. SCHNEIDER. Hydraulic transmission gear.
7,887. L. VORHIES. Transmission gear.
8,034. G. H. NORMAN AND R. PAPE. Explosion engine and engine using products of combustion expansively for vehicle driving and lighting.
8,241. J. D. INGRAM. Vehicle wheels.
9,446. J. WILSON. Spring wheels.
9,717. E. H. CHAGNY. Automatically indicating slackening of speed or stopping of cars.
9,982. J. A. DOUGLAS. Variable-speed gear.
10,944. A. M. ROBINSON. Valve mechanism.
14,611. C. GRUNWALD. Cylinders.
14,792. F. E. BAKER, LTD., AND S. J. H. WILKES. Lubricating of engines.
16 083. E. CHENEAUX. Change-speed gears.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 616. (No. 48, Vol. XVII.) | OCTOBER 26, 1912. | Weekly, Price 3d Post Free, 3½d.



A RESTFUL REMINISCENCE OF BROOKLANDS, TOWARDS EVENING.—The racing as seen from above the banking, behind the grand stand.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
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Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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For the "Auto." Directory to Makers of Cars and Accessories see pages xix to xxii.

Passing Events

The Police View of Speed Limits.

In connection with the several applications for reduced limits of speed which have been made lately by the L.C.C., the Commissioner of Metropolitan Police has, through his deputies, made his opinion of these limits pretty well known. The publication of a letter addressed by Sir Edward Henry to the Council, however, throws a good deal more light upon his views and his reasons for holding them. This document we reproduce in full on another page of this issue of the AUTO. There is really little need for us to comment upon the document—it conveys its own impressions quite adequately—but we may remark that it voices almost exactly the views that have been set forth time and again during the past fifteen years in the pages of this journal, ever since, in fact, the Motor Car Act came into being.

To commence with, the Commissioner points out that perusal of the police returns shows that accidents caused by vehicles travelling at high speeds are the exception rather than the rule, and it is the experience of the police that dangerous driving is quite as likely to occur at low speeds as at high. This is a point upon which we ourselves have always insisted—that speed by itself does not of necessity connote danger and that it may be just as dangerous to drive at five miles an hour as at fifty or even more so under circumstances that arise every day in populous and busy places.

Another point which is worthy of more than passing attention is that which lays it down that the result of arbitrary speed-limits is that law-abiding motorists who are never likely to be a danger to the public are hampered and delayed, while reckless drivers who are the real source of danger are able to disregard the speed limit with impunity—which is another aspect of the arbitrary limitation of speed upon which we have often insisted. Farther on, Sir Edward expresses the opinion that experience shows that a steady flow of motor traffic proceeding at a brisk pace is less likely to cause accidents than a congested condition of traffic, which leads to confusion and consequent danger. But, as we have said, the letter speaks for itself. To our mind it is a notable document, if only for the fact that it bears out in the light of police experience the views that we and others have consistently advanced as theories for all these years past.

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The Suppression of Reckless Driving.

In some respects the circular dealing with punishments inflicted under the Motor Car Act, issued by the Home Secretary for the information of magistrates, is admirable in its moderation and for the common-sense view taken of the proper proportioning of the punishment to the offence. In others, however, it is possible to view it with something akin to concern.

In the first place, the Home Secretary says that his attention has been called from time to time to what is alleged to be the unequal manner in which the Acts are administered, and, without attaching undue importance to general allegations of that nature, it seems to him that occasionally, at any rate, hardened and deliberate offenders are treated too leniently, and less offences meet, in some instances, with unnecessarily severe punishment. Power to suspend a driver's licence, thinks Mr. McKenna, or to declare him disqualified from obtaining a licence for a given period, supplies the most effective and appropriate punishment. Heavy penalties, it is laid down, should not be imposed as a matter of routine, and trivial offences not due to any grave negligence may properly be met by a warning and payment of costs or a light sentence.

Undoubtedly the Home Secretary is right, or would be if it were not for the human equation supplied by our magisterial benches. We are scarcely inclined to agree

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that the hardened offender gets off with comparative lightness. The refutation of that dictum is surely carried by the newspaper reports of motoring cases which appear from day to day. Fines of twenty, thirty, and even forty pounds and costs, with suspension of the licence for varying terms are not at all uncommon, especially where it is alleged the offence partook of the nature of dangerous driving. Surely it cannot be urged that such penalties are inadequate. The fact of the matter is that the grown-up person is very much like the small boy in many ways, and if he happens to be a motorist and falls into the clutches of the law, he wants to know why, having only been caught exceeding the limit once before, he should have to pay five pounds and costs, while Jones, whose licence is like a cinematograph film due to endorsements, is not hanged forthwith for his tenth offence. Thus the impression gets abroad that the hardened—or shall we say unlucky?—offender does not meet his deserts.

The Home Secretary's advice to magistrates that suspension of the licence affords the best means of punishment, we should, as we have indicated, agree were it not that magistrates take such widely divergent views of what are serious and what are venial breaches of the Motor Car Acts. Take, for example, a notorious bench like that at St. Neots, where to be accused of a breach of the law is tantamount to being convicted, and above the doors of whose Court might well be inscribed Dante's famous line. Such a hint as that contained in Mr. McKenna's circular will certainly be calculated to set these Solons thinking of the chances they have missed by not putting the power they possess into active use. There is just one saving grace in the matter, and that is from the point of view of the district which relies to some extent upon motorists' fines for the relief of its rates, a driver whose licence is suspended might as well be dead for all the good he is likely to be to the local exchequer. By all means let the licences of habitually dangerous drivers be cancelled altogether, when it is proved satisfactorily that they are a danger to the community; but we dread the vagaries of the local benches. True, the person whose licence is suspended or cancelled may appeal to a Higher Court, but law as administered in Courts of Quarter Sessions cannot be had for nothing, and much injustice is likely to be done to people who simply cannot afford to appeal.

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Technical Offences.

With regard to the Home Secretary's note relating to the imposition of heavy penalties as a mere matter of routine, it is to be hoped that this will prove effective. Too long has it been the fashion to impose fines of several pounds sterling in respect of motor car offences which, had the vehicle concerned been horse-drawn, would have been met by a nominal fine of half-a-crown. Then, too, the note to the effect that when justices do not think proper to take a lenient view, regard is to be paid in inflicting penalties to the means of the offender, is admirable. To fine a man a fortnight's wages for a technical breach of the law, as often happens in practice, is something more than glaring injustice. Whether the Home Secretary's instruction will produce any effect is another matter, but it is excellent nevertheless.

The only other part of the circular which calls for comment is that relating to dangerous driving, which is as follows :—

"The Secretary of State is informed that an idea prevails that conviction of dangerous driving cannot be obtained unless it is proved that some person was actually endangered. Mr. McKenna is advised that the wording of the sub-section is so plain in the contrary sense that this view is quite untenable. There can be no doubt that a person who drives, for instance, at a furious rate through a narrow village street may properly be proceeded against in a case where no proof can be produced that there was any person present in the street whom his driving actually endangered."

Here again it is impossible to take exception to the view of the Home Secretary save on the ground of the human equation of police and magistrates. If the latter were not inclined to describe as dangerous driving quite moderate speeds on open roads and to convict on that charge, we should view the clause in the circular relating to this offence without concern. As it is, however, we confess that we have misgivings. But, doubtless, in time all these things will find their level—and, in the meantime, we can only be thankful for the small mercies vouchsafed to us.

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A Traffic Board for London?

Out of evil sometimes cometh good, we are told, and out of the agitation of the L.C.C. against the motor omnibus and its too rapid development—too rapid, that is, for the liking of the tramways party—it seems likely that in time we shall really see constituted that very essential authority, a London Traffic Board. Not yet, unfortunately, are we to see this necessary consummation, however. At the last meeting of the L.C.C. Sir John Benn led an attack on the proposal of the General Purposes Committee that the Government should be asked to constitute a Traffic Board on the lines laid down by the Royal Commission of 1905. His suggestion was that the Government should transfer the traffic powers now held by the police to the Council. And an excellent idea, too—from the point of view of the tramways party. But from that of the travelling public, and of the average citizen who is not enamoured of County Council methods, it is a different matter altogether. It is not as though the L.C.C. administered the powers it already holds in a way that is either acceptable or efficient. Arbitrary in its methods on the one hand, and wastefully extravagant in expenditure on the other, we certainly do not want to see the powers of the Council extended in a direction which would make it the virtual autocrat of the people's daily lives, controlling all their comings and goings. However, the sane majority of the Council appears to look at the thing from a sensible point of view, for they would have none of Sir John Benn, his resolution being defeated, and the Committee's recommendation adopted.

Between the L.C.C. recommendation and the accomplishment of the design, however, there seems to be a

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gulf fixed. In the House of Commons, last week, Capt. Jessel asked the Home Secretary if the Government would bring in a Bill to set up a Traffic Board for London. In reply, Mr. McKenna said that he would consult his colleagues at the Board of Trade and the Local Government Board in this matter, but he did not at present see much prospect of Parliament having time to discuss legislation on this subject. We can quite understand this! Without importing a political flavour into the question, it does seem to us that the control of the London traffic is at least as important from the truly national point of view as, let us say, the Disestablishment of the Welsh Church. But, then, nobody really cares two straws how long London's traffic may remain congested and virtually uncontrolled—nobody, that is, who has no immediate interest in it—but the other is a matter which concerns VOTES, and thereto hangs another item—salary. What a game it all is!

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The Egregious Benn.

Sir John Benn begins to get on our nerves, especially when he gets going on his pet subject of the L.C.C. trams. Speaking at the last Council meeting, he likened the omnibus companies to a greedy trust which had set out for the destruction of its municipal rival. "There can be no comparison between the two," he said. "One is run for private profit and the other in the public interest. The tramways are run for the people by the people, and if in peril they are entitled to protection. Personally, I welcome co-operation, but it is different when a great trust is out to kill the property of the ratepayers. The streets have been handed over to one of the most serious vehicular raids ever known, and London is staggering under a terrible death-roll."

Mr. Walter Reynolds seems to have given a pretty effectual counter to this balderdash by pointing out that Progressiveism as interpreted by Sir John Benn was the rankest Protection, which was run on such lines that had the municipalities controlled the traffic during the past century they would have resisted the introduction of railways because it abolished the use of horses, and would have fought against the electric tramway because they had a monopoly of horse cars. Precisely. The fact of the matter is that, as we have repeatedly pointed out, the tramways are up against a far more economical and efficient form of traction, and they are becoming, in their turn, just as obsolete as the horsed cars they replaced. All the argument in the world will not alter what is a solid and indisputable fact.

Sir John Benn's pathetic argument that the tramways are run by the people for the people, while the omnibus companies are nothing but greedy dividend sharks is the merest twaddle. It is true enough that the latter make money while the former are losing, but there is no getting round the fact that they are competing on level terms, or that if there is any handicap it is in favour of the rate-aided trams. As we remember the history of the L.C.C. tramways, when they were first introduced they were to actually act in relief of the rates; that is to say, they were to pay their way and make a profit. That, surely, is by way of being a commercial undertaking, and now that the march of progress has brought that undertaking up against something which is commercially more efficient, its sponsors are squealing. From our own point of view as ratepayers, the thing is deplorable—but there it is. All the highfalutin nonsense of Sir John Benn and his colleagues will not alter the fact that a huge and expensive blunder has been committed, and, what is worse, persisted in against the wiser counsels of those who saw the trend of events.

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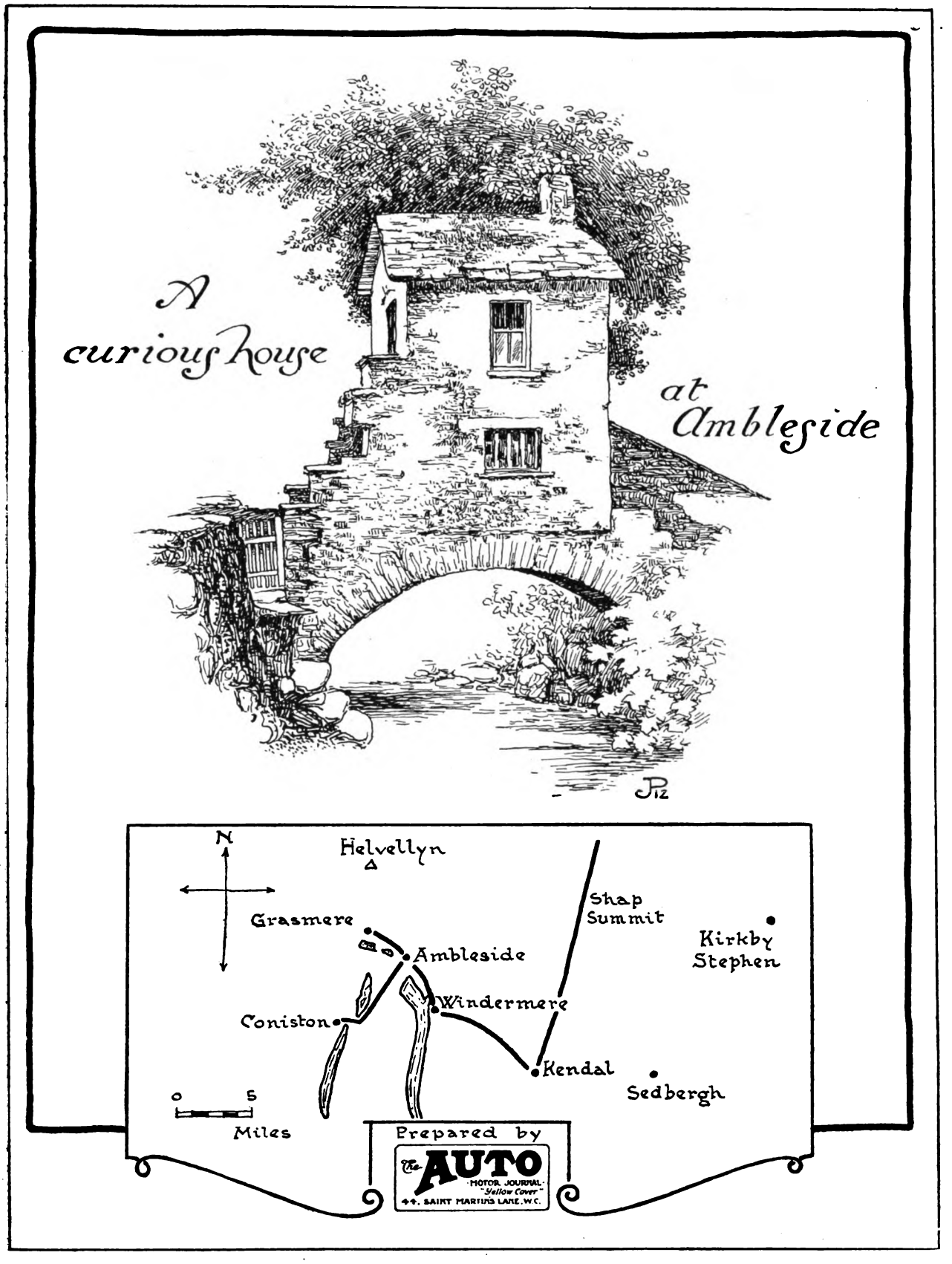
The Liability of the Employer.

A weekly contemporary appears to take exception to our views on the subject of the liability of the employer for the acts of his driver. In its current issue appears a rather strong criticism of our remarks of a fortnight ago on this subject, which we cannot help thinking has been written after a too cursory study of what we actually said. Says our contemporary:—

"It is a highly dangerous doctrine for any journal to teach, that no matter what a chauffeur may do even when under orders, his employer, though in the car at the time, can escape scot-free. One would imagine that the employer is a pitiable little object, frightened to death of his driver, and we can picture him shaking in his shoes every time he enters his car. But what are the facts? And facts, we are told, are stubborn things. Chauffeurs are given, and have to obey, orders."

If the writer of the article will only refer back to the passage from our own Editorial *which he quotes*, he will see that we said deliberately that circumstances *do* arise in which the employer should be held responsible for the action of his servant. If this is an attempt to inculcate "dangerous doctrine," then we are afraid that we do not properly appreciate the meaning of language. Farther on in our contemporary's article, the allegation is made that we put forward a view which really tends to advocate one law for the employers and another for the servants. To this we most emphatically dissent. What we did argue in our original article—to which point of view we most certainly adhere—was that while in certain circumstances the employer ought to share the responsibility of a breach of the law it would be going altogether too far to say that, provided he happens to be in his car at the time an offence is committed—no matter what that offence be—he should be liable for aiding and abetting. To that end we quoted the report of a case heard at the Norwich Quarter Sessions, with the Master of the Rolls in the Chair, in which it was held that under the circumstances ruling the owner could not be said to have "aided and abetted" in the commission of the offence alleged against the driver. Our contemporary's remarks on this decision are illuminating as, after agreeing that there is really something in the doctrine that the owner cannot *always* be held liable, the writer remarks that "even legal decisions are not always the same thing as common-sense," and "that such decisions are frequently reversed," which appears to us to be a poor attempt at "hedging."

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Just before the road leaves Ambleside at the north, there is a curious and ancient house built upon the bridge which spans a narrow stream. Bridge and house are alike fern grown, and showing the ravages of time; but as they stand they form a picturesque, unique, and attractive feature.

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HOW TO BUY COACHWORK.

THIS year Olympia will more than ever be an exhibition of automobile carriages de luxe, and the prospective purchaser of adequate means will have an unrivalled opportunity of giving expression to his taste in colour schemes for the *carosserie* of his car. The problem that is presented by the preparation of a specification for the car of one's choice is by no means easy of solution, but of all things concerned with the initial step of one's initiation into the mysteries of motoring, it is perhaps that over which it is best worth while to take pains.

Nowadays, the machinery of any car that is worthy of the highest class coachwork, is so reliable that its perfection is taken for granted. As a result, purchasers pay more and more attention to the automobile as a carriage and less to its virtues as a machine. Those of high estate, with traditions to be satisfied, know very well what they want in the way of colours, for it is the fashion with cars no less than it was with the carriages that they supersede, to have the coachwork finished in the family colours that have been handed down through succeeding generations. Others have a greater latitude of choice, but one and all are faced with the necessity of making up their minds on the all important questions of materials and fittings.

In this matter, it appears to us that the policy of quoting inclusive prices which is still followed by some of the leading firms, militates against the full realisation of the individual note which, so to speak, differentiates the modern high-class British car from the cheap American productions that you can take or leave as they are, but cannot have altered for love nor money. It stands to reason that it must be much fairer all round if the prospective purchaser is in a position to choose each essential item from a price list.

One does not go to a large furnishing house to order a duplicate of one of their exhibition rooms at an inclusive price; on the contrary, the purpose of the firm's display is to provide something as a basis on which the customer can form his ideas. Individual conceptions of harmony and appreciation of quality must eventually be limited in their expression by the length of their pocket, and although it is true that the *prix fixe* does do its best to dominate our restaurant life, we have kept it out of our household, and we ought never to have let it become associated with the carriage work of our cars.

It is always a temptation to some people to choose the most costly item offered for selection, irrespective of whether it is or is not exactly what they want. Some colours, for instance, are more expensive than others, and you can imagine the state of mind of Jones, who prefers green, when he knows that his friend Brown is going to get his car finished in crimson lake for the same money. It is not to be supposed that Brown imagines that he is paying less for his crimson lake than it is worth, and equally is it no less than human nature if Jones believes that he is buying a part of Brown's car for him on the assumption that he is paying crimson lake prices for his green. Neither customer is satisfied, and the firm loses money; why, therefore, continue a method that has so little to commend it to anyone?

The fairest and most satisfactory way is for each individual to pay for exactly what he orders; there is then no heartburning, and no need to destroy a fair working profit for the sake of maintaining an undesirable scheme. There is the more reason, too, for putting a separate price upon everything, since prices vary so enormously, especially in the trimmings of coachwork. The actual woodwork of a well-built body is, comparatively speaking, an inexpensive item, but there is a wide range in the cost of different colours for painting, and a still wider range in the matter of upholstery. The average purchaser fails to appreciate the true state of affairs until he has a chance of analysing it for himself by the aid of a properly-prepared price list. He sees, for example, a standard car that may have been finished off in the least expensive of materials, and which sells, therefore, at a comparatively low price. It is not quite what he wants; consequently, he suggests a variation here and a modification there, and lo! he is presented with a bill for £50 or £60 more than the price of the original body that was the basis of his order, and a very natural state of dissatisfaction all round is the result of his surprise.

The policy of providing a whole range of different styles at one fixed price is not the true solution to this problem. On the contrary, the only real way out of the difficulty is to follow the principle of providing the prospective customer with adequate information in the first instance. Purchasers of motor cars should be encouraged to study details from the price point of view, and those who can afford to do so should take as much interest in the matter as they would in the furnishing of a house. After all, there is a great deal of fascination about any sort of shopping and the fireside discussion that is the invariable prelude to a decision of this magnitude, at the present season of the year, is by no means the least attractive part of the business. The coachwork, unquestionably, is the main consideration in the eyes of a large section of car buyers of to-day, and coachwork catalogues and sample books with their detail prices should encourage a thorough appreciation of price differences at the same time that they give useful assistance as to how to produce desired effects with different qualities of material. Colouring in the decoration of cars which formed the subject of an article in the AUTO. of May 28th, 1910, is an engrossing subject about which much might yet be written with advantage, and it would become a really fascinating study if it were backed up by the truly practical aspect of a well-arranged price list, so that prospective purchasers could study economy in the working out of the schemes that are to give expression to their individual tastes.

Since the enclosed car has become so universally popular, the internal decoration has assumed a much increased importance, and anyone who is selecting materials for the upholstery should bear in mind that the colouring thereof will form an ever-present foreground to the distance provided by nature. The fundamental tones of the country-side are green and brown, and as the natural shades that are thus provided are so much superior to anything that can be artificially produced, it is on the whole preferable to select a contrast to them as the basis of the interior colour scheme of an enclosed car.

The interior itself, however, should not be subject to contrast, although changes of shade are desirable. Especially should the ceiling be lighter than the floor, which latter also may, with advantage, be made darker than the walls. Red is pre-eminently a cheerful colour, and it has warmth. Pinks, ranging from salmon to rose form an artistic contrast to the surroundings, but blue pinks must always be avoided. Blue in itself is soothing when well-chosen, but otherwise is apt to be cold. A

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pale turquoise is as artistic as any, but not easily obtained in the right shade.

It is a mistake to suppose that light colours are necessarily less durable than dark colours. For one thing they show the dust less, and for another they tend to improve with age if the material is of the very finest quality, as it invariably should be. The extension of the principle of encouraging individual choice based on detail prices should do much to foster an increased range of colourings that are out of the ordinary but nevertheless artistic when properly chosen. There is no reason in the world why the interior of a car should be gloomy any more than there is any need nowadays to use the black horse-hair furniture of the Victorian era. Indefinite tones, such as the fawn and biscuit coloured cloths, are considered to be in good taste because they are quiet, but they have become undeniably ordinary, and it needs some little stimulus to ensure a departure in the right direction. The greyish green tinted cloth that is so popular for much the same reason has little else to recommend it, for there are few ladies, at any rate, who would hesitate to describe it as "difficult" if they once came to study the matter from the point of view of their own personal environment. The modern enclosed car is something of a drawing room, and it should complete rather than destroy the effect of a thoughtful toilette. Much time and considerable money may also be spent on the perfection of minor detail as, for instance, in the selection of silver or ivory against a background of royal blue, of copper as an appropriate ornament on cream or light fawn, of amber against turquoise, and of jade in a setting of old rose. The use of special woods, too, is a most fascinating study; mahogany, for example, not only possesses a beautiful grain in itself but very often supplies just the note of warmth that is required to complete a decorative effect.

Of the outside of the car it is necessary to remember that it must harmonise with the background of nature, otherwise it will attract an undesirable attention that it is the object of good taste to avoid. Dark shades are thus for the most part desirable, and a really good dark green is one of the best, particularly as it permits a very wide range of interior colourings. It is also, by the way, one of the less expensive paints. A point to be borne in mind about the use of very dark colours, such as are almost black in tone, is that their smartness depends absolutely on their perfection of service, the least blemish reflecting a spot of light that draws attention to a fault that would pass unnoticed on a car that was, for instance, painted white.

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First Conviction under Silencer Order.

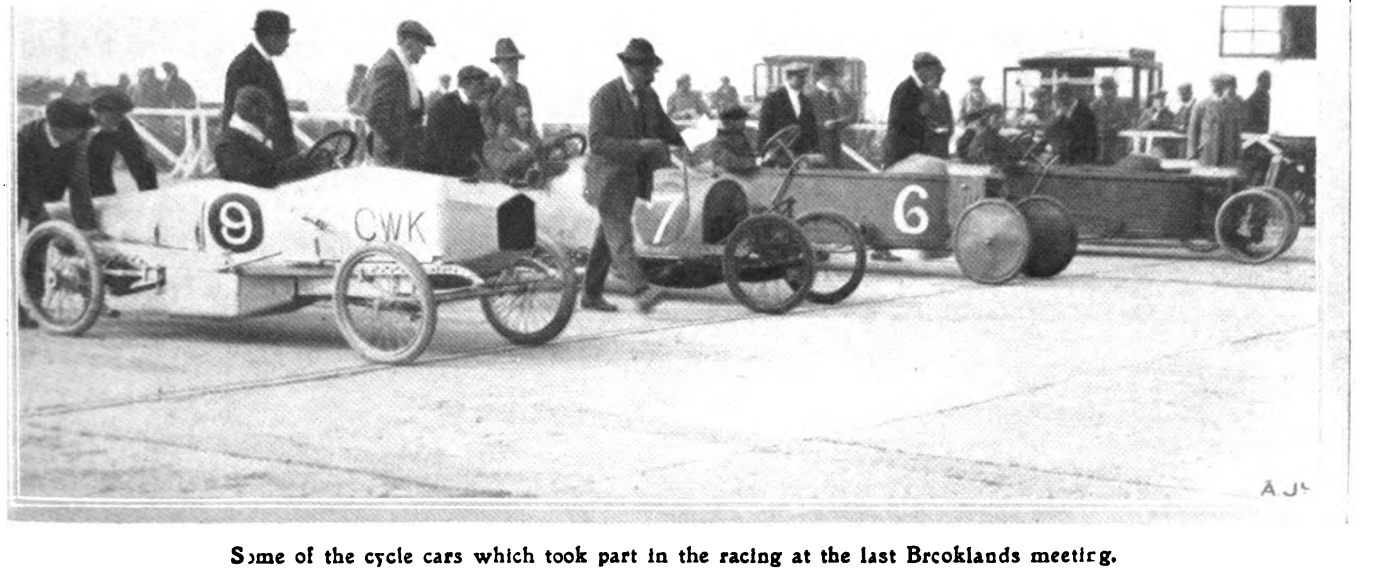
WHAT was stated to be the first prosecution under the L.G.B. Order requiring motor cars to be fitted with an efficient silencer was heard at Bow Street last week, when Sir Albert de Rutzen imposed a fine of ten shillings with two shillings costs upon George Hyman, of Park Lane. According to the police evidence the defendant was driving a car from which the exhaust was escaping and making a continuous noise, there being no silencer, and it was explained that the trouble was due to a detached joint.

L.C.C. Trade Scholarships.

AMONG the trade scholarships for boys offered by the London County Council there are three in the carriage and motor body-building trade, which are tenable for two years from Easter, 1913, at the Regent Street Polytechnic, W.

Candidates must be between fifteen and sixteen years of age on July 31st, 1913, and applications must be sent in not later than to-day, Saturday.

It is probable that next year six of these scholarships will be awarded.

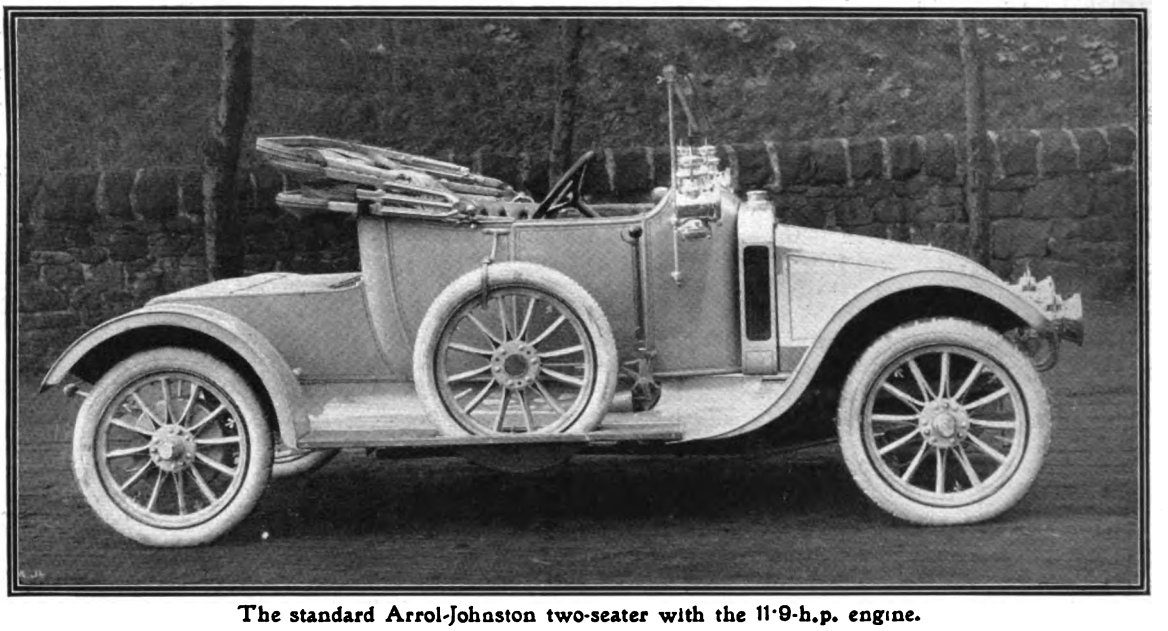


Some of the cycle cars which took part in the racing at the last Brooklands meeting.

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ARROL-JOHNSTON CARS FOR 1913.

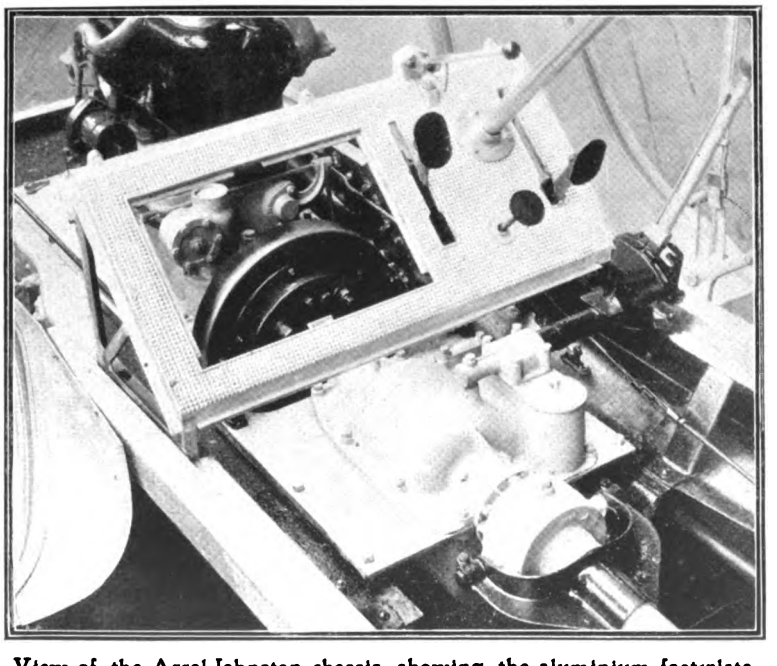
WHEN we visited, recently, the works of Messrs. Arrol-Johnston, Ltd., at Paisley, they were still busily engaged on their 1912 cars, orders for which continue to pour in so fast that the resources of the factory are severely taxed to keep pace with the demand. Everyone is therefore looking forward to the completion of a new factory, which, as our readers are aware, is just now being erected in Dumfries, and Mr. Pullinger, the energetic head of this go-ahead concern, is spending most of his time there in order to make sure that they will be completed by January. It is not surprising, under the circumstances, to find that the 1913 Arrol-Johnston cars show no radical changes either in the 11·9, 15·9, or 6-cyl. 23·8-h.p. type.



The standard Arrol-Johnston two-seater with the 11·9-h.p. engine.

It will be remembered that the chief feature of all three cars is the unit construction of engine and gear-box, which, however, differs from most of its kind in having a common base for the engine and gear-box. This member, a substantial aluminium casting, extends from the starting handle right back to the rear end of the gear-box. It is bolted direct to the main frame and thus lends additional stiffness to the whole chassis. Both in engine and gear-box the bearings are bolted to the upper halves of the casing, and after assembling the whole as a unit, it is simply bolted down to the previously mentioned base.

We are pleased to see that the four-speed gear-box has been retained, as we consider it a very useful feature on moderate powered cars like the two four-cylinder types turned out from the Arrol-Johnston factory, and especially is this true of a machine that is built in Scotland, and, therefore, naturally makes a special appeal to residents in the Highlands. This year some modification has been been made in the design with a view to improved silence, and one of our photographs shows the interior of the gear-box as at present constructed.

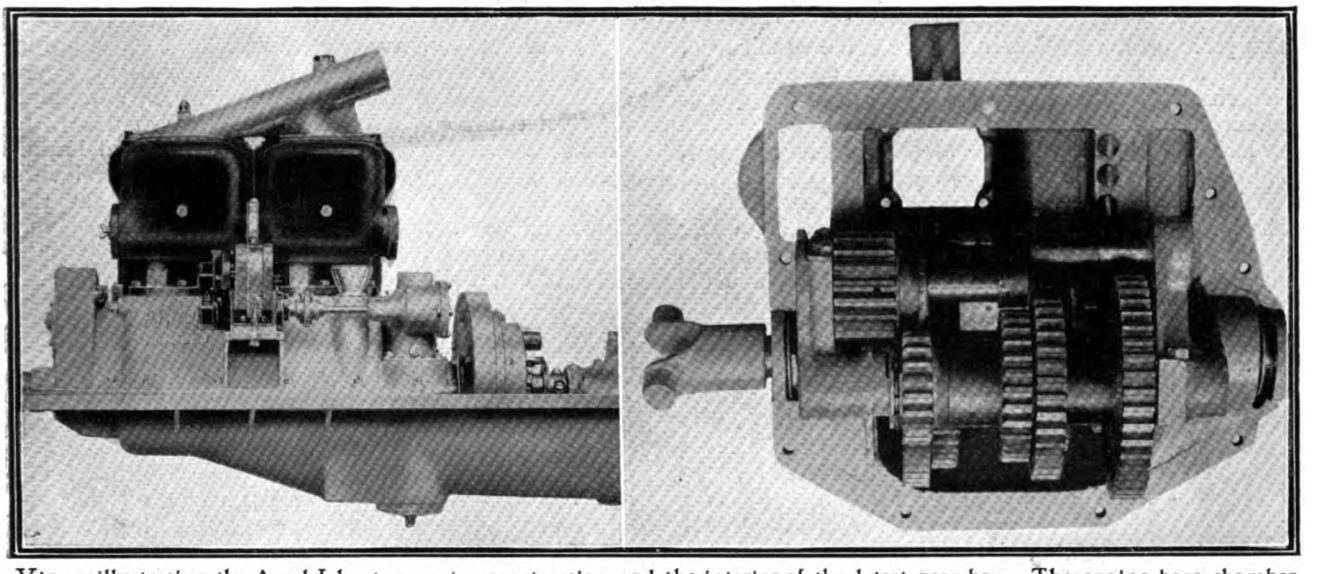


View of the Arrol-Johnston chassis, showing the aluminium foot-plate with the cover to the manhole removed for inspection of the clutch.

Another view shows a refinement in the aluminium footboard, which now has a large manhole for access to the clutch. Whilst on the subject of clutches we would say a word of appreciation in favour of the inclusion of a special spanner for its adjustment. A tell-tale indicator is now fitted on the dash-board as an addition to the pressure-feed lubricating system, while the lid of the oil-filler on the engine has been modified so that it can more easily be opened.

An increase has been made in the diameter and width

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Views illustrating the Arrol-Johnston engine construction and the interior of the latest gear-box. The engine base chamber also forms the lower half of the gear-box casting.

of the brakes, which are all on the back wheels and are lined with an asbestos fabric. Lubrication has also been provided for the brake-shoe hinges and the bearings of the brake-rods. More ball-bearing thrusts are to be found throughout the chassis than formerly, while those already in use have been increased in size in some places.

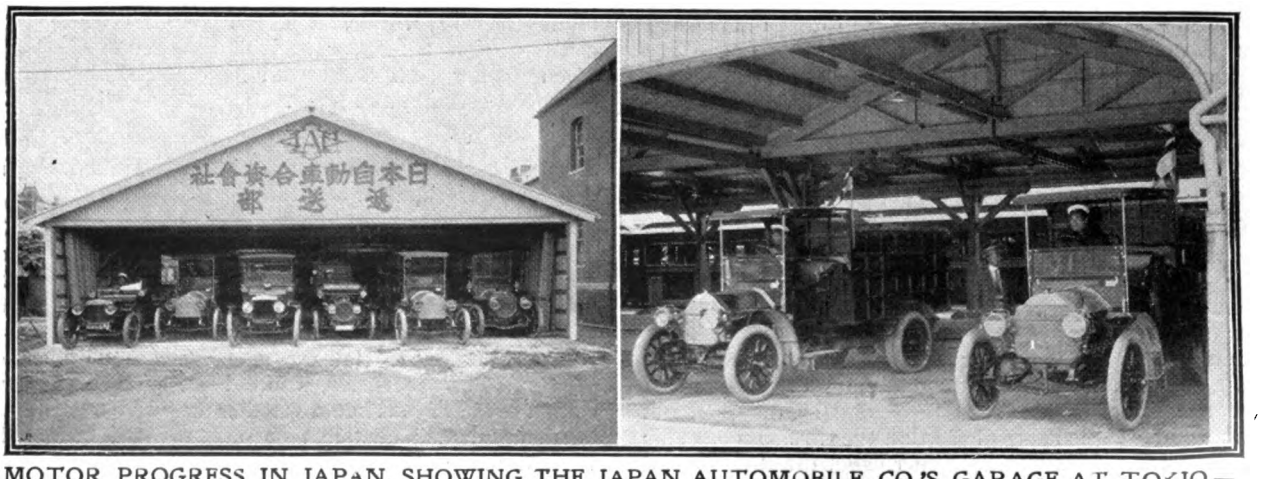
New designs of coachwork are available for 1913, and as usual reflect credit on this department of the factory, for the coachbuilding and the chassis construction are under one roof. The pointed back, by the way, has now disappeared, and a sloping panel forms the rear of the body in its place. In the slope of the panel lies an attempt to reproduce the dustless qualities of the old body.

Detachable wheels are retained as a standard feature, and the spare wheel is in future to be provided with its cover and tube. As spare wheels are not of much use to anyone without a cover and tube, we have never been able to quite appreciate the point in policy that made many firms stop short at providing the full equipment. It might be supposed that the Arrol-Johnston cars were to be raised in price in consequence of this addition, but such is not the case. In fact, the 15·9 has "suffered" a slight reduction, and with the new five-seated body will be sold at £395—at which price it ought to inspire something approaching competition among prospective owners anxious to secure early deliveries.

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"One-Way" Streets at Westminster.

With a view to relieving the congestion of traffic, the Westminster City Council is seeking the approval of the police to a scheme for fixing notices in certain streets requesting the drivers of vehicles to proceed in one direction only. As a commencement it is proposed that traffic in Jermyn Street and Bennett Street should proceed in a westerly direction only, while that in Arlington and Deanery Streets should only go in a northerly direction. It is understood that the police are in sympathy with the proposal.



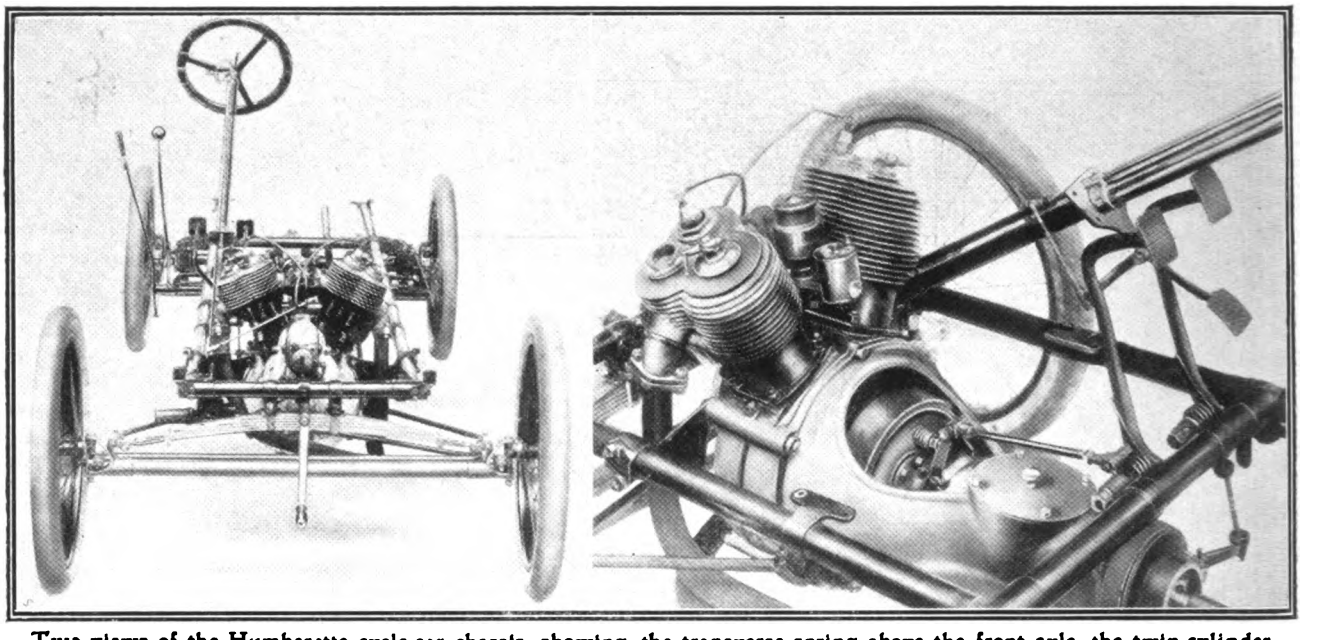
MOTOR PROGRESS IN JAPAN, SHOWING THE JAPAN AUTOMOBILE CO.'S GARAGE AT TOKIO.—On the left is seen one of the Company's garages open for work, and on the right are seen two 15-h.p. Fiat lorries in the service of the Imperial Post at the Shinbashi railway station, Tokio, natives being employed as chauffeurs.

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THE HUMBERETTE.

TEN years ago the old Coventry works of the Humber Co. produced the first Humberette, and again has the popular name been brought to the fore. This time the firm is entering the market peculiar to a class of vehicle which for lack of a better name is commonly called the cycle-car. The object of these machines is to afford a well-built light runabout such as will satisfy the requirements of those who have hitherto been unable to find anything better for their price than a motor cycle with side-car attachment. Price is, indeed, the first consideration, and the Humber production is being placed on the market ready for the road at £125 complete.

As our illustrations show, tubular steel construction enters largely into the chassis, the main-frame members and front axle being made in this way. An advantage that is not to be underrated is the fact that this little car has a standard control, separate clutch and brake-pedals, accelerator-pedal, throttle and ignition-levers on the steering-column, a change-speed lever at the right-hand side, and adjacent thereto a brake-lever. The motor cyclist is thus initiated into the driving of a full-sized car, while the owner of a large car can possess a machine of this sort as a runabout without being irritated by differences in the control every time that he attempts to use it. The suspension is a departure from ordinary practice, inasmuch as the transverse-spring is used in front, and a pair of quarter-elliptic-springs are used behind. The steering-gear consists of a rack and pinion.



Two views of the Humberette cycle-car chassis, showing the transverse spring above the front axle, the twin-cylinder V engine, and the clutch and gear-box, which are built with the engine to form a single unit.

It has a wheel-base of 7 ft. 3 ins. and a track of 3 ft. 6 ins. The power plant consists of a twin-cylinder V air-cooled engine driving a propeller-shaft through a leather-faced cone-clutch and a three-speed and reverse sliding spur-wheel gear. The transmission arrangements are designed on the lines of the standard car, and the appearance of the machine as a whole is that of a modern car in miniature. The bore and stroke of the engine are 84 mm. by 90 mm. The gear-box provides a direct drive on top speed, and the back-axle is bevel-driven.

Dunlop light car tyres of 650 by 65 mm. are fitted to wire wheels, and the standard coachwork consists of a two-seater sociable body upholstered in green leather, and fitted with high side-doors, scuttle-dash, wind-screen, and hood.

Proposed Improvements on Portsmouth Road.

THE scheme for the provision of a by-pass road from Kingston Vale to Esher, skirting Coombe, Malden, Surbiton and Kingston, appears to be hanging fire, although the Road Board is anxious to do what it can to push matters forward. Several conferences with the local authorities concerned have been held, but the great stumbling block to the progress of the scheme is the cost, and some of the urban councils appear to think that the road would not benefit them, and so they will not contribute. Others are afraid that the diversion of traffic would affect trade. On the other hand, the Road Board have pointed out that the new road would open up a new district for building, while a crowded road, which was hilly, narrow and tortuous, would be superseded by one which was broad, clear and level.

A Wolseley Concert.

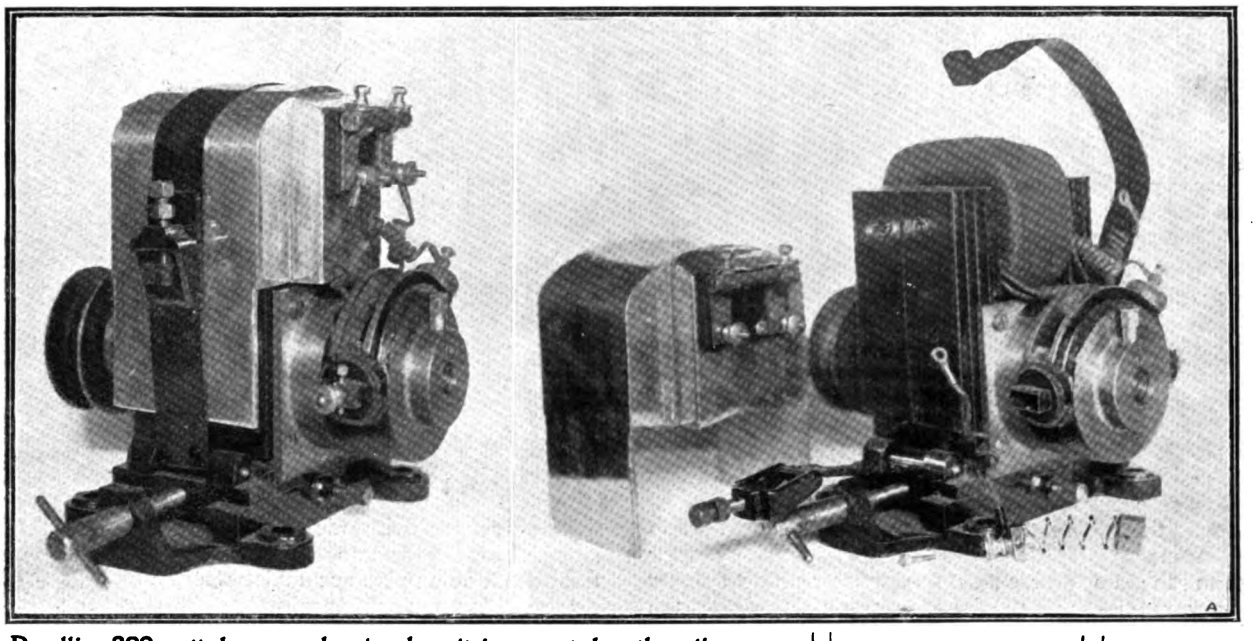
LIKE everything connected with the name "Wolseley," the Bohemian Concert arranged by the Social and Athletic Club of the London branch, and held at the Caxton Hall, Westminster, on Monday last, was a great success. The Hall was crowded with members of the staff and their friends, who did not stint their appreciation of the various items, whether they were contributed by their talented confrères or professionals. Mr. J. E. Hutton made a popular and ideal chairman, and the programme of twenty-three items, not counting the encores, was carried through in splendid style.

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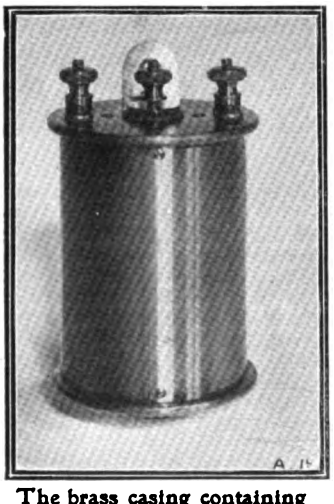
DYNAMO LIGHTING SETS.—VII.

THE DUCELLIER.

LARGE output for low weight is the outstanding feature of the Ducellier dynamo. Two hundred watts, consisting of 14–15 ampères at a pressure of 12–14 volts, are given by this machine, the total weight of which is only about 20 lbs. As the method of output control is part and parcel of the dynamo, there is no further weight beyond that of the cut-out to be added to the weight of the dynamo. This output, if metallic filament lamps are used, is roughly equivalent to 200 candle power of light, so it will be seen that there is provision for plenty of illumination, and then a good margin for keeping the batteries charged.



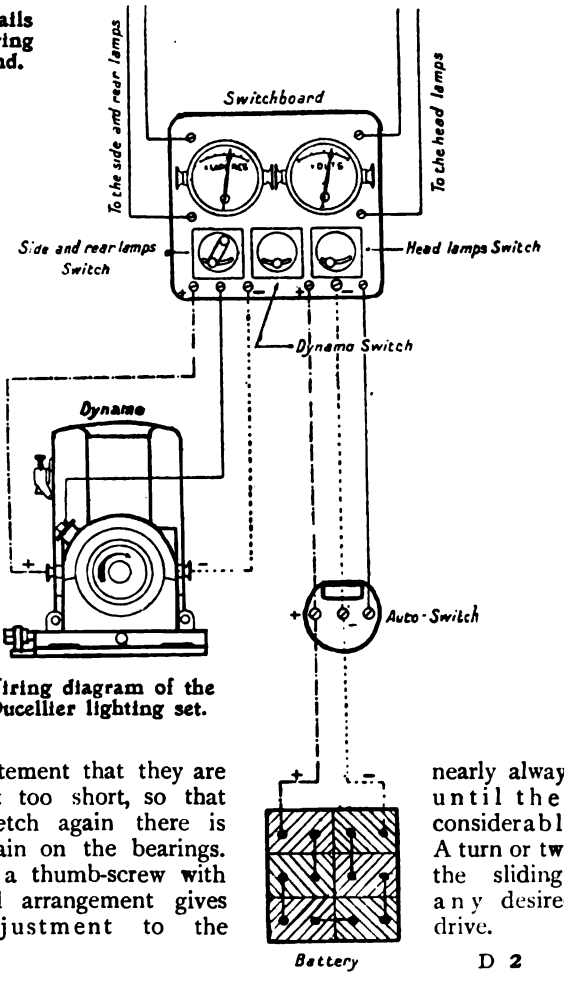
Ducellier 200-watt dynamo, showing how it is mounted on the rails upon which it slides. On the right, with casing removed, showing winding of field magnet. Spring-held brush visible in foreground.



The brass casing containing the electrically-operated automatic cut-out of the Ducellier dynamo.

The armature rotates on ball-bearings at a maximum speed of about 3,000 r.p.m., the maximum being forthcoming at about 1,800 r.p.m. Owing to the absence of delicate contacts and the like, a higher speed could be used, but it is questionable whether the advantages which might accrue would compensate for the extra wear and tear on the mechanism. A very wide surface is offered by the commutator to the carbon brushes, which are spring held, and are easily removable, as shown in one of the illustrations.

To avoid continual cutting of the belt-drive, in order to tighten it, the whole dynamo is mounted upon rails, along which it slides. A very little experience of tightening up short belts of this description, without the use of such slide-rails, will convince anyone of the truth of the statement that they are nearly always cut too short, so that considerable stretch again there is A turn or two of a thumb-screw with the sliding-rail arrangement gives any desired adjustment to the drive.



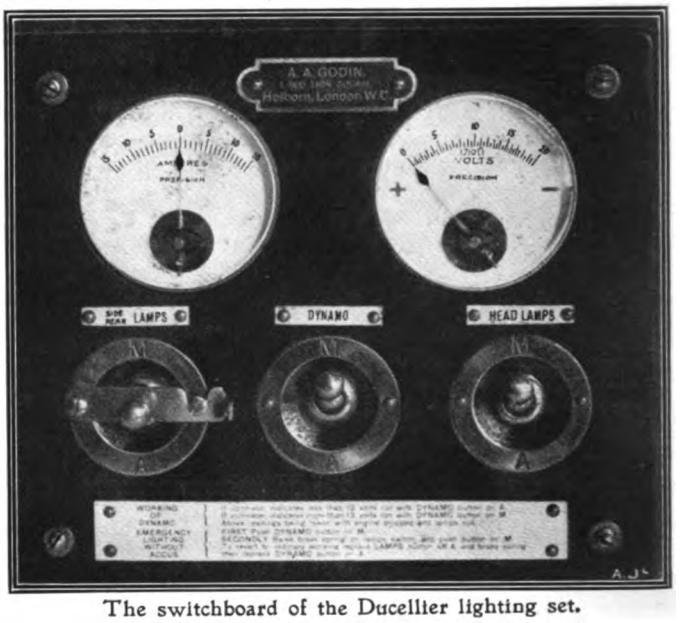
Wiring diagram of the Ducellier lighting set.

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Current regulation is effected by a combination of permanent and wound field-magnets, the principle of which control is that up to a certain point both sets of magnets act together in producing current. In the case of the permanent magnets, however, increase in the speed of revolution causes armature reaction to set in and to exert a negative effect on the output. With a well-designed control working on this system, the uniform pressure of the charging current considerably increases the life of the battery, in addition to which the lamps may be run direct from the dynamo without fear of burning out.

Enclosed in a separate brass casing, well finished in order that it may be fitted on the dashboard, is the magnetic auto-switch, the duties of which consist of connecting the dynamo to the battery when the current from the former has risen high enough to charge the latter and to disconnect them when the reverse takes place. Except for the possibility of damage due to incorrect wiring this switch should never require attention after once being fitted.

Switchboard and distribution board are in one, and it is finished suitably for mounting on the dash. The three switches visible on the face are all that are necessary to operate the whole lighting system, inclusive of connecting up the dynamo to the batteries. The outside switches control respectively the head and the side and tail lamps, while by the operation of the centre switch the dynamo current may be used for charging the accumulators or for lighting the lamps direct. Both ammeter and voltmeter are always on circuit, the former giving a clear indication of whether the accumulator is being charged or is giving off current.



The switchboard of the Ducellier lighting set.

Three alternative sets of 12 volt batteries are supplied, with capacities of 60, 80, and 100 ampères respectively. They are put up in polished mahogany boxes, while mahogany cases with nickel or brass fittings are also supplied for the dynamo. The total cost of the installation with a 60 ampère accumulator, and a mahogany box for the dynamo, complete with five lamps, is £45. The other battery sets increase the price by £2 and £3 respectively.

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LONDON POLICE AND SPEED LIMITS.

IN season and out of season we have insistently tried to point out the uselessness of 10-miles speed limits within the Metropolitan area, and this attitude has been more than justified by the fact that the police have in nearly every case opposed applications for speed limits. The London County Council, however, persist in sending their applications forward, but it is to be hoped that a letter which has been addressed to them by Sir E. Henry, giving his reason in detail for opposing speed limits, will bear good fruit, and that the London County Council will not waste any more of the ratepayers' money by causing useless enquiries to be held. The following is the text of the letter, dated July 30th, from the Chief Commissioner to the London County Council :—

The Chief Commissioner has given much consideration to the question of whether the imposition of reduced speed limits does promote the safety of the public, but he fails to see that any sufficient benefit is conferred. Perusal of the police returns shows that accidents caused by vehicles travelling at high speed are the exception rather than the rule, and it is the experience of the police that dangerous driving is quite as likely to occur at low speeds as at high.

There are, moreover, several objections to the imposition of reduced speed limits in specified thoroughfares in the metropolis, which may be summarised as under :—

1. A speed limit to be of use must be enforceable. In most places, however, where such limits would be imposed, the volume of traffic renders it impossible to establish controls for the timing of cars, and prosecutions cannot, therefore, be undertaken. The result s that those law-abiding motorists who are never likely to be a danger to the public are hampered and delayed, while reckless drivers who are the real source of danger are able to disregard the speed limit with impunity, so long as they do not bring themselves within the reach of Section 1 of the Motor Car Act.

In instituting proceedings the police rely upon this section in all cases where the driving has been such as to connote danger to the general public, irrespective of the actual speed, and the suggested speed limits would thus be of no assistance to them in dealing with dangerous driving.

2. A general retardation in the average pace of traffic would necessarily represent material financial loss to the community at large ; and the enforcement of a reduced speed on any section of an arterial route has in this way a considerable effect upon traffic as a whole.

3. General retardation leads to congestion. Congestion can only be prevented by passing vehicles through as rapidly as circumstances permit, and experience shows that a steady flow of motor traffic at a brisk pace is less likely to cause accidents than a congested condition of traffic, which leads to confusion and consequent danger.

4. There is the practical difficulty of ascertaining which are actually the streets in regard to which special regulations are necessary. It is difficult to say that any particular street is, under existing conditions, more dangerous than numerous other similar streets in all parts of the metropolis.

5. It is necessary to notify by road-signs the existence of speed limits. This in itself constitutes a danger, as the attention of the driver should be concentrated upon the traffic in which he is driving.

Having regard to these considerations, and most particularly the first, the Commissioner does not favour the imposition of reduced speed limits in London, unless, perhaps, under very exceptional circumstances, as he does not feel that any useful purpose is served by their introduction.

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Mirrors for Covered Vehicles.

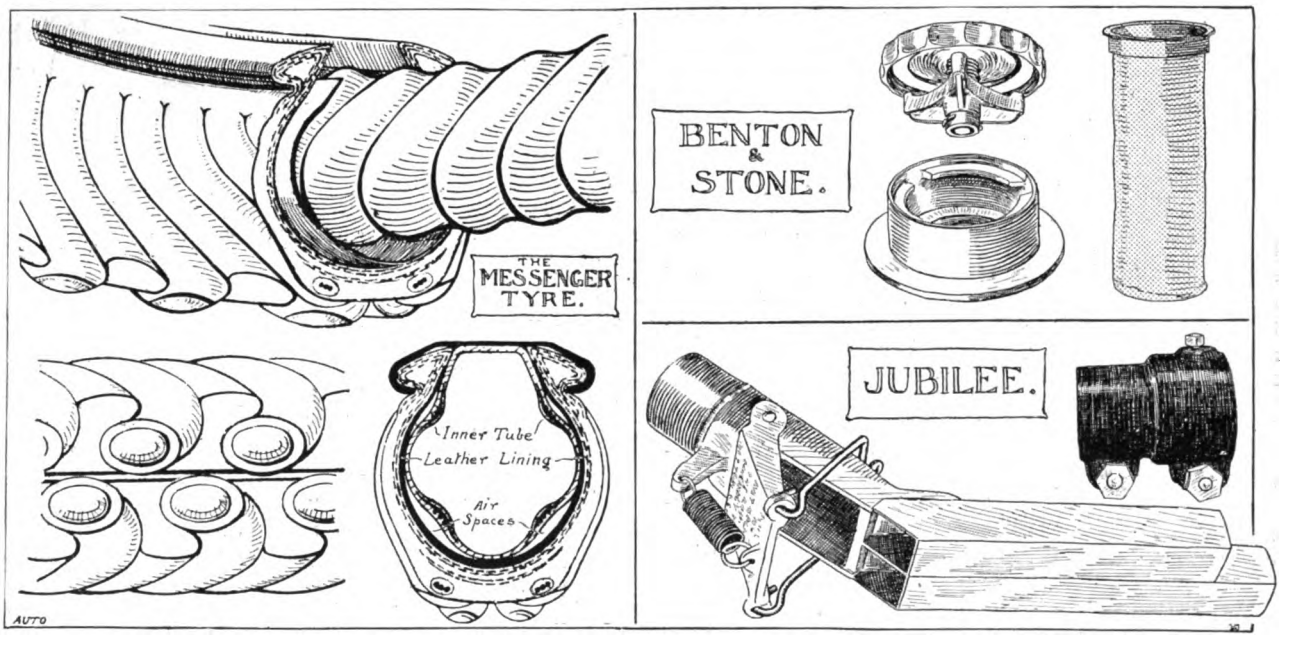
THE Worcestershire County Council have been considering the question of making a by-law compelling all covered vehicles, whether the covering is temporary or permanent, to carry a mirror so placed as to enable the driver to observe the traffic behind. A draft of the proposed by-law has been submitted to the General Committee of the R.A.C. and Associated Clubs, which has expressed its approval of the proposal in principle.

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ACCESSORIES OF THE WEEK.

AMONGST the innovations which form the basis of the Messenger tyre, perhaps the most noticeable is the series of corrugations extending spirally around the inner tube. The object of this construction is to provide a pathway by which a current of air may continually circulate around the tube, so that the heat caused by friction can easily be radiated and carried away. Such faith have the makers in this system of cooling that they incorporate into the inside of the cover a band of specially-prepared chrome leather, which takes the place of two or three plies of canvas, which is said to materially increase the resiliency of the tyre. So far as we know this method of constructing the cover has never before been successfully used, the reason being that the heat caused the leather to harden and cracked it, it is also liable to disintegrate the rubber of the tread at that most important point—where it is vulcanized on to the canvas. The corrugations in the tube are made by winding a strong restraining band of canvas around it. Steel-studded knobs of hard rubber are used in the tread, which is designed to give little resistance to swinging the front wheel in steering, and to have a very strong non-skidding effect. Lateral stresses are resisted by the ribs, seen in the illustration, which form part of the walls of the tyre, while the three circumferential cords, shown in the section, are anchored at several points in such a manner as to minimise starting and stopping strains. The address of the inventor, Mr. J. H. Messenger, is 39, Aybrook Street, Manchester Square, London, W.

FOR those who prefer something more elaborate than the "Jericho" warning-signal, which we illustrated on October 12th, the "Jubilee" horn has been designed and marketed by the same makers. This instrument is more solidly made than the former, brass being used instead of aluminium. The principle is precisely the same, and it is fitted with equal facility. The price of the "Jubilee," which is sold by Messrs. Smith and Dorey, of 14A, Great Marlborough Street, complete with pedal, pulley and all other fittings, is 35*s*., or only 5*s*. more than the price of the "Jericho."



MESSRS. SMITH AND DOREY also sell the well-known "Enots" radiator cap. We illustrated this article in one of our show issues of last year, but the present sketches give a much clearer idea of its construction. About two-thirds of a turn is all that is required to securely fasten the cap in place, a similar twist in the opposite direction removes it. The three arms shown underneath the cap pass through the apertures and then slide along under the rims for a little over half the length of the latter, after which a further twist of the fluted cap screws the three arms up a thread, which has the effect of drawing the rubber washer on the top of the cap tightly down on to the top of the aperture. The filter shown on the right is composed of fine brass wire gauze and is readily removable for cleaning.

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To Improve Kensington High Street.

CONSIDERATION is now being given by the Kensington Borough Council and the L.C.C. Improvements Committee to a scheme for the widening of Kensington High Street. The narrowest part of the street is in front of the Town Hall, and it is proposed to set back the business premises on the opposite side from the railway station, eastwards. The work will be regarded as a County Improvement and the Borough Council are prepared to pay one-third of the cost.

Lucky Egham.

THE Egham Urban District Council has had the good fortune to be presented with a 60-h.p. motor fire-engine, which the donor—Baron Bruno Schroeder, who has an estate at Englefield Green, situated within the Council's area—hopes will meet the requirements of the district.

Doubtless many other Rural Urban Councils wish they could say "accepted with thanks" to such a splendid offer.

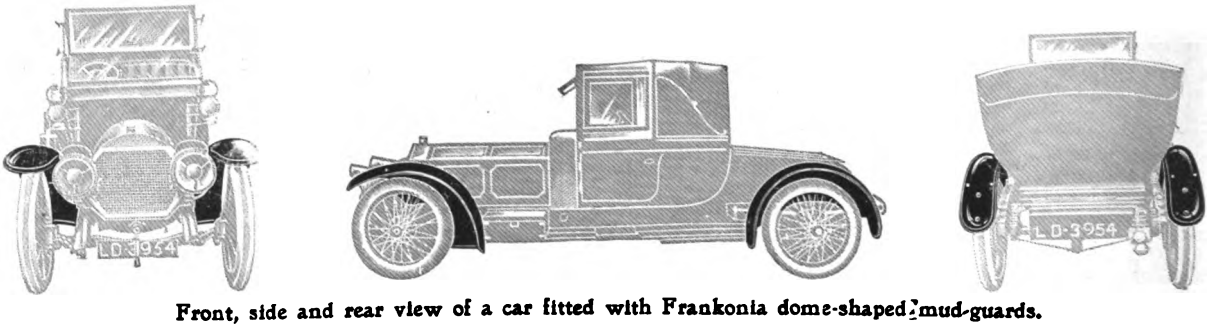
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EFFICIENT MUDGUARDS.

When leaving our office one evening last week at a rather late hour, and glancing at the large number of motor carriages, most of them more or less elaborate landaulettes or limousines, there was one point in particular that impressed us by no means favourably, viz., the shape and condition of mudguards. With but very few exceptions, they were either very ugly, and in those cases where the coachbuilder had succeeded in adapting their shape to the general outline of the bodywork, they were hopelessly inefficient. We pondered some time over the matter, and came to the conclusion that this deplorable state of affairs is merely the natural outcome of the development of the motor carriage. We deliberately use the term motor carriage in preference to the more usual and shorter motor car, because it recalls to our mind more easily the fact that the motor carriage, especially the landaulette and limousine, even in these days of highly-developed motor vehicles, still represents more or less closely a horse-drawn carriage placed on an engine-driven undercarriage.

But it seems to us that the principal aim of the coachbuilder has been to improve the interior of the vehicle in order to provide greater comfort for the occupant, and to give his carriage an artistic and pleasing outline which is good to look at. While he has undoubtedly succeeded in this to a great extent, he seems to have devoted very little care to the preservation of the paintwork of the car. In this, as in most other matters, prevention is far better than cure, and the very best safeguard against premature deterioration of the varnish is the provision of really efficient mudguards. But here he is up against a problem which at first sight is not easy to solve. The guards, of course, must not spoil the appearance of the car, and yet their design must be such that as far as possible they intercept all the mud thrown up by the wheels. It should not be forgotten that mud consists of gritty matter, and owing to the high speed of the road-wheels is thrown up with considerable force, so that the impact itself is liable to mark the varnish. The question, therefore, remains how to intercept it.

Most mudguards are of a section, as represented by the first of the three sketches reproduced on this page, but they have two chief drawbacks. Firstly, they cannot catch all the mud thrown up by the wheels, but only that part of it which is thrown upwards, while a considerable portion of it passes on either side and falls either on the highly varnished surface of the body work, or hits some unfortunate pedestrian who happens to be near. Secondly, after even a very short run over a moderately wet road the mud adhering to the underside of these guards is plainly visible, and does by no means improve the appearance of an otherwise well turned out vehicle. This latter fault has partly been overcome by attaching a "lip" to the outer edge of the mudguard—as shown in Fig. 2—but while it hides the underside of the mudguard more or less completely, it does not prevent a considerable quantity of mud passing on either side of the guard and being deposited in places where, to say the least of it, it is undesirable.



Front, side and rear view of a car fitted with Frankonia dome-shaped mud-guards.



Fig. 1.—Ordinary flat mud-guard.

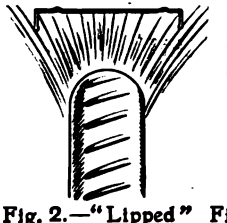


Fig. 2.—"Lipped" mud-guard.



Fig. 3.—Dome-shaped mud-guard.

A dome-shaped mudguard of a section, as shown in Fig. 3, has been on the market for some time now, and is sold, under the name "Frankonia Mudguard," by Messrs. Barimar, Ltd., of 10, Poland Street, London, W. Its shape is such that it intercepts every particle of mud thrown up by the wheels. When passing down St. Martin's Lane on the above-mentioned occasion we could not help being impressed by the clean paintwork of one car in particular which was fitted with Frankonia mudguards. However, the car bore a London number, and might not have travelled very far. But on asking the chauffeur we were informed that the owner of it lives 27 miles out of town, somewhere Epsom way, and had travelled quite a fair distance over by-roads with an indifferent surface. The chauffeur expressed himself highly pleased with these mudguards, which are, so we were told, made in one piece, and are therefore extremely rigid. Their surface is quite smooth, without corners, and can be kept clean very easily.

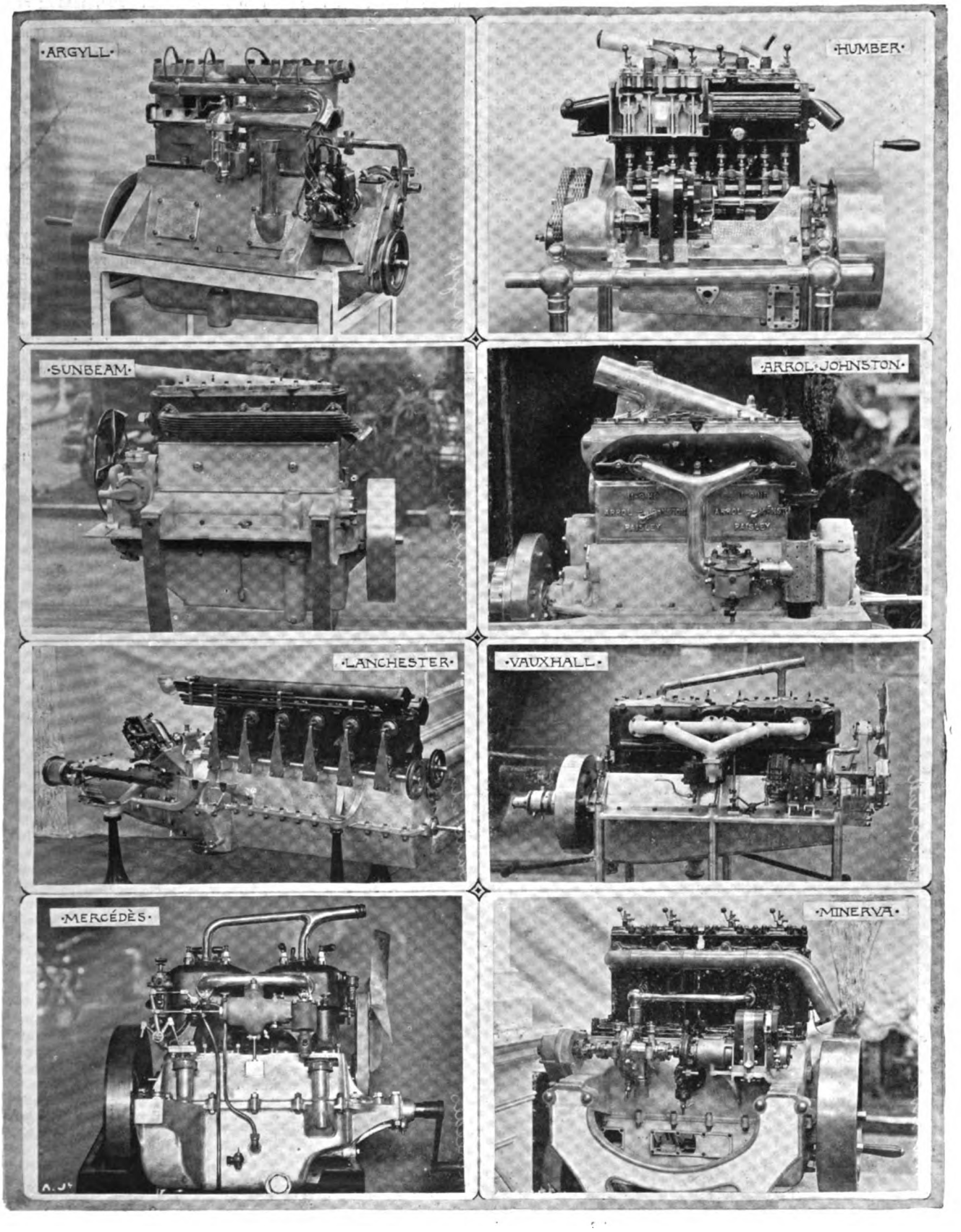
Their outline also is such that they are suitable for almost every type and shape of bodywork; indeed, they are likely to considerably enhance the appearance of a car. For this reason, outside any other, we should like to draw the attention of motorists and coachbuilders to what we consider to be a real and valuable improvement in the equipment of a motor carriage.

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Horse Owners Complain of Manchester Trams.

The attention of the Manchester City Council is being drawn by the Lancashire and Cheshire centre of the R.I.A., to the needless congestion caused by the tramcars at certain junctions. It may be as well to add that the question has been raised by a representative of horse-owner interests.

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Typical examples of 1912 British and foreign engine construction.

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CORRESPONDENCE.

Spare Wheels.

SIR,—I would remind your correspondents that no one need be stopped longer on the road than half an hour by tyre trouble, if he carries a spare tube and a gaiter. These weigh very little, and are not unsightly encumbrances. A spare wheel weighs, say, 56 lbs., and to carry it for 10,000 miles is the equivalent of 250-ton miles of work. Considering how seldom, with proper care, tyres give way on the road, is it worth while? This raises the question of the overloading of cars. In many cases the bodies are much too heavy, and in addition all sorts of weighty accessories are added to them. Spare wheels, electric lighting outfits, acetylene cylinders, searchlamps, self-starters, and so on. The engine, in addition to its proper work, has to drive pumps, fans, magnetos, dynamos, and goodness knows what. It is a case of "Hit him hard, he's got no friends." And then people are surprised that the poor thing makes a noise, and gets out of order. How could it be otherwise? Only those, and they are few, who have been trained to march under weight, have any adequate idea of what weight means, and how it takes all the life out of an animal or a machine. And the tyres suffer as much as the engine. Have mercy on both, and you will seldom be stopped on the road.

I attribute my "good luck," as your correspondent calls it, though I call it good management, to observing this rule. I am afraid I shall put another strain on "Prudentia's" powers of belief by saying that I get 7,000 miles duty on an average out of my tyres, so that I am not wasteful or uneconomical.

B.

The Unofficial Tyre Trial.

SIR,—In reply to Mr. W. Y. Jones' letter *re* above. The first third of the letter and the last paragraph but one are devoted to advertisement pure and simple, and have nothing to do with answering my letter.

With regard to my suggestion that regular stockists of Victor tyres did not exist, and that therefore all tyres were not supplied under the same conditions, Mr. Jones has nothing to say.

We may therefore take it that this is so.

Mr. Jones says it is grotesque to suggest that the Victor tyres might be of special manufacture. I still fail to see why. I know tyre firms have made special tyres for races: I imagine it is possible to do so for trials.

However, Mr. Jones wishes to produce "*positive* proof" to *me* that the Victor tyres "were stock tyres in every respect." I want no evidence that cannot be made public. Let Mr. Jones produce his "*positive* proof" to the public. I daresay he can do so: but he should have done so before the trial started.

Mr. Jones seeks to confuse the issue by putting the mileage cumulatively, *i.e.*, 12,000 miles for the trial. Actually one Victor non-skid is compared with one D, C and M non-skid; one Victor grooved is compared with one D, C and M grooved; one Victor plain is compared with one D, C and M plain. And I repeat that the comparative mileages of one tyre of several makes gives an experienced motorist very little guide whatever to the relative quality of those makes.

Mr. Jones neglects to answer my question as to where the Victor tyre is made. That is a plain question. Is it British, or Belgian, or of what nationality?

The final paragraph of Mr. Jones' letter tends to insinuate that I have a trade interest. You, Sir, can vouch for the truth of my statement that I am indeed a private motorist and have no interest, direct or indirect, in any tyre whatever.

The reason of my duplicated letter is that I sent it to the three motor papers that I read.

WILLIAM GEORGE.

Official Trial Results.

SIR,—I saw a statement by James McManus in your correspondence column last week, and the first paragraph reads as follows:—

"On July 18th, 1910, the Royal Automobile Club published a certificate of an official trial of a 65-h.p. car from London to Edinburgh and back, with a speed trial afterwards at Brooklands. In this trial the fuel consumption was arrived at under regulations by which the engine was not allowed to be stopped while the car was running downhill."

As I was the driver of the car in question, and did stop my engine down the hills on this trial, his statement is untrue. I do not quite understand why he has made such a statement, as he could have enquired from the observer and found out the truth before writing letters to the papers.

October 21st. ARTHUR E. MACDONALD.

SIR,—Replying to Mr. James McManus' letter in your issue of the 19th inst., in regard to the first paragraph, reading as follows: "On July 18th, 1910, the Royal Automobile Club published a certificate of an official trial of a 65-h.p. car from London to Edinburgh and back, with a speed trial afterwards at Brooklands. In this trial the fuel consumption was arrived at under regulations by which the engine was not allowed to be stopped while the car was running downhill." Mr. Arthur MacDonald, who drove this car for me in this test, tells me that Mr. McManus' statement is untrue, and as he was the driver of the car he ought to know what did take place. It seems a pity Mr. McManus did not take the trouble to ask the observer of this trial before writing to the papers.

In regard to his comparison between another 6-cylinder car more than a year later doing better than the Napier trial of 1910, this seems to me quite reasonable, and just as the Napier trial of 1910 was beaten in 1911, so the 6-cylinder Napier in 1912 did better in many ways than the 6-cylinder car of 1911. This seems to me quite reasonable, and merely shows the progress and improvement which you would expect in the 6-cylinder Napier made under Mr. Montague S. Napier's supervision.

In regard to the paragraph reading as follows:—"In June of this year Messrs. Edge entered one of their 65-h.p. Napier cars for a London-Edinburgh trial, with speed on the track . . ." This statement is absolutely untrue. Neither myself nor my firm entered a car or ran a car for the London-Edinburgh-London trial in June of this year. It seems unfortunate that Mr. McManus could not take the trouble to either read the official certificates or make himself better informed with facts before writing to the papers.

In regard to the various comparisons he wishes to draw between the six-cylinder Napier and another car, I should have thought this car ought to have been good enough to stand on its own merits without trying to belittle the wonderful performance of the 6-cylinder Napier, which, with passengers and weight carried, weighed no less than 5,472 lbs., went from London to Edinburgh and back on a consumption of 27·65 miles to the gallon, and 67·55-ton miles to the gallon, and then went to Brooklands Track in the same condition, and did a speed of 75·69 miles per hour.

I still think this is a very magnificent performance. I regret that the speed at Brooklands was not greater, as the car is capable of considerably greater speeds than was recorded on this occasion, but a speed of 75·69 miles an hour does seem to me sufficient for all ordinary purposes, and the road performance is quite the best that has ever been done in this class of competition.

It does seem most curious that whatever make of car does some good performances people seem to want to at once write to the papers and try to belittle them. However, whatever Mr. McManus may think of the matter, the 6-cylinder Napier did a magnificent performance, and no amount of letter-writing will alter this fact.

The fact that I know it can do better still from a speed point of view is useful knowledge to me, in case it is necessary to better the present performance.

S. F. EDGE.

Self-Starters.

SIR,—Judging by the correspondence which has appeared in the Press during the last few weeks on the subject of self-starters, there seems to be quite an earnest desire on the part of motorists to know more about this development in automobile construction.

It has been my good fortune to be connected with a company which has been the means of riveting the attention of the motoring world on to this subject, and for this reason, perhaps, you will be good enough to give me the opportunity of covering certain points that are not generally known.

Starting from the beginning, four years ago, the Cadillac Co. realised that the crudest thing on a modern motor car was starting by hand, and as they were directly connected with the Delco Engineering Laboratories who were then manufacturing a supplementary ignition of very great merit for the Cadillac cars, they joined forces with Mr. Kettering, their engineer, and one of the most brilliant electricians in America, to produce a self-starter, using electricity as the most convenient form of storing the necessary energy to achieve the purpose that they had in view.

For two years very thorough experimenting was carried out, not only with their own development, but with all other forms of self-starters that they could hear of and that were worthy of a trial.

Numerous devices operated by compressed air, by gas, by springs, were tried but were found sadly wanting, and not until this Delco system had demonstrated its high degree of positiveness and efficiency did the Cadillac Co. feel, after all its investigations, experimenting and testing, that there existed a system which had proved worthy of being incorporated as part of the Cadillac car.

About the same time there was one other important development coming to the front, this was electric lighting for cars.

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It was obvious, then, that the future lighting of cars would be done by electricity on account of its many advantages over acetylene and oil lamps which were common practice. There was a splendid opportunity of combining two really great advances in automobile construction by one invention, and as the Delco ignition system had proved so eminently satisfactory in the past and could be adapted to form part of the new system being developed, in the simplest manner possible, it came about that the three necessary features of the car could be combined in one really very simple unit, and thus the present satisfactory development became a part of every Cadillac car, and judging by the wonderfully satisfactory experience of the past twelve months will, I am convinced, not only be used on Cadillac cars, but will also become, in time, a part of every car; I can think of no really good reason why it should not.

Taking the objections that have been raised by different writers to the Press, I will endeavour to answer them, not from any theory of my own, but from practical experience.

Some people seem afraid of an electric accumulator. Now, they overlook the very great and vital point that no accumulator has ever been used on any motor car that works under such ideal conditions. First of all, the accumulator is always kept automatically fully charged by the engine, and is automatically cut off directly the full charge is in; except for running very slowly and for starting it is not called upon to give any discharge *whatever*, as the dynamo takes care of the ignition and lighting.

The first thought of others is that it is necessary to use a very big accumulator; this is also wrong, as the battery used is only 80 ampère hours. Most motorists will recognise that this is roughly the same as what was used formerly for ignition only, when a spare was carried, that is the equivalent of two 40-ampère hour accumulators.

Another point I would like to mention whilst on the subject of accumulators is that very material advancement has been made in accumulator construction for heavy discharge work in America during the last few years, through the great success of electric trucks, which are used very largely, and, I am told, are the most successful form of road locomotion known in their sphere, consequently no great trouble was found in getting an accumulator to stand a fairly high momentary discharge for self-starting, and as the gearing from the motor to the engine was through the periphery of the fly-wheel, it enables the dynamo to be geared down in a very easy manner, and also apply power to turning the engine in the best of all possible ways by taking advantage of the leverage provided by the diameter of the fly-wheel, consequently it is found actually in practice that the discharge from the battery for starting does not injure it in any way that makes it a matter of any serious moment.

Another point I have seen raised is the question of weight. This is also not at all a serious matter, as no one would refuse to put a most beautiful lighting set on for the sake of a few pounds extra weight. Granted that you are going to have the car electrically lighted, all that is required is to design the motor slightly heavier than that used with a normal lighting set, and attach the small gear which slides into mesh with the fly-wheel weighing only a pound or so.

But there is quite a considerable amount of weight displaced by the new system which brings the balance down to a very small and quite inconsiderable consideration; for instance, the magneto is replaced, the acetylene generator and piping and fairly heavy lamps replaced by lighter ones.

Some people may lament doing away with the magneto. On this question I can speak with a great deal of experience, as all Cadillac cars were fitted, in the past few years, with magnetos of the most famous the world knows; they were also fitted with Delco supplementary ignition. So successful was the latter that I have no hesitation in saying that one is just as good as the other, and it must be remembered that both systems being on one car it was only necessary to switch from one to the other to test for superiority.

I am convinced that if the Delco system of ignition had been produced ten years ago, the magneto, perfect as it is, would have had a hard fight against it, but it came out after the magneto had demonstrated how perfect it was, and the public demanded nothing better.

There are one or two advantages which the Delco system has over the magneto, such as being able to run the engine infinitely slowly. The distributor can be placed anywhere most convenient instead of being on the magneto and found difficult to get at. Shorter high-tension wires can be used also, which is a little help.

The lighting is, of course, a very great advantage, and there is no practical or theoretical argument that can be produced as to why it should not be as perfect a system of electric lighting as any other devised.

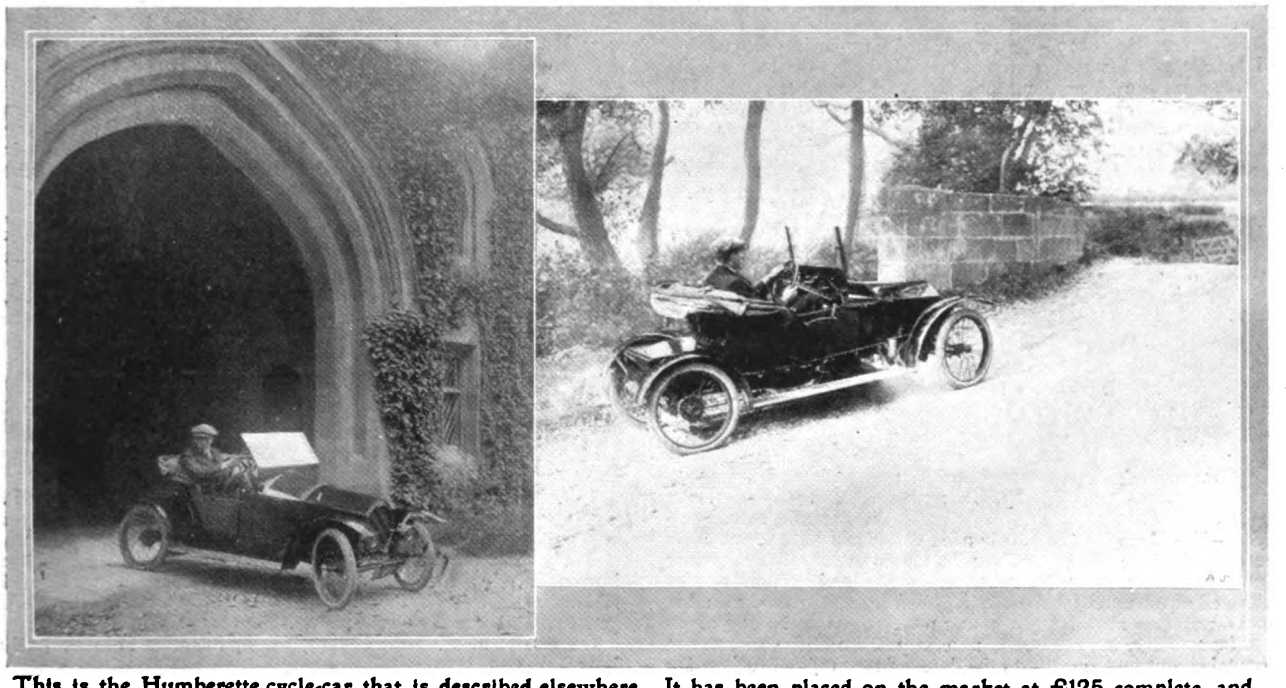
The R.A.C. test of this shows how perfect this part of the system has been, and the light given by the system is magnificent, objects five telegraph poles ahead on the open road being distinctly shown up. No attention whatever was given to the system throughout the test, it was not even found necessary to oil it.

Now, as regards the twelve months' experience the writer has had of the cars delivered, although the first car equipped was delivered in September, 1911, in England, we have yet to receive the first complaint from a customer.

One particular feature I ought to mention is the freedom from any attention on behalf of the owner that the system demands. Only once in two weeks do we ask him to put a little distilled water into the battery. This operation comprises the entire attention which three systems—lighting, ignition and self-starting—have to receive from the hands of the owner.

The writer, when he first heard of this system, felt natural misgivings, but the past twelve months have removed the last vestige of doubt as to the entire success of the self-starting, lighting and ignition system as fitted to the Cadillac cars.

F. S. BENNETT.



This is the Humberette cycle-car that is described elsewhere. It has been placed on the market at £125 complete, and has a twin-cylinder air-cooled engine, with a standard three-speed live-axle transmission.

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Motor Law—Reasonable and Unreasonable.

SIR,—I have only this evening, owing to excessive pressure of business, had the opportunity to read my copy of the AUTO. of October 12th, and have been much interested in your article on "The L.C.C. and the Motorist."

You may also be interested in my experience of the treatment received from this Council and I enclose for your perusal copies of the correspondence: My letter to the L.C.C., dated September 3rd. Reply from the L.C.C., dated October 4th. My reply to the L.C.C., dated October 5th. Reply from the L.C.C., dated October 9th. My reply to the L.C.C., dated October 14th.

It seems incredible that honourable men such as Sir Laurence Gomme and Mr. H. E. Haward can be aware of what is being done in their name, or that it is really possible, if they have full knowledge of it, that the law forces them to act in such a manner and does not permit them to exercise any discretion.

It is at any rate quite clear to all right-thinking men that if such a miscarriage of justice can occur, that the R.A.C. and the A.A. should stir themselves vigorously to attempt to amend it, or that if such treatment is only the result of a too stringent interpretation of the law by underlings of the L.C.C. that steps should be taken by those in authority to immediately relieve them of their position.

Such treatment as Mr. Bidwell and myself have received (and doubtless hundreds of others) is most certainly not justice and is a disgrace to any law which makes it possible.

I may add that before paying the tax demanded I saw the solicitor of the R.A.C. by appointment.

At present I am only an Associate and therefore entirely appreciate the fact that I ought not to expect too much, as the value already given by the Club for such a moderate subscription is simply marvellous, but I had certainly hoped to have got better news from him.

He told me when I attended at the Club that he was exceedingly busy and could only spare me a few minutes, but that if I admitted that I had bought the car at the end of the trial run on August 31st, that of course I had to pay the tax for the whole year.

After that advice I felt that it was useless to dispute the L.C.C. claim and sent them the cheque for the amount demanded, but for the reasons pointed out in my letter to the Council I still feel that I was not liable for it and the money was only obtained from me by their threat of legal proceedings.

Really, it seems as though the mantle of the late Dick Turpin has been taken by the L.C.C. and that they consider the great majority of the users of the King's highway as fair game for plucking.

ALBERT YOUNG.

(Enclosures from Mr. Young.)

283, Regent Street, W., Sept. 3rd, 1912.

The Clerk, London County Council, Motor Car Licence Dept.

Dear Sir,—On 10th April last I paid balance of tax—4 guineas—on electric car, and stated at the time that it was then being sold to be broken up.

The licence—AG 8509—is now enclosed for your inspection.

I have now purchased a second-hand Daimler 35-h.p. made in 1905, and enclose declaration form which I believe to be correct, but am not sure if the rating is the same for these old-fashioned cars.

As I shall only have four months of the present year to run the car, I presume that I am not liable for the tax for the full twelve months and that I shall have the allowance on the tax paid for electric car which was only run about three days since January 1st—merely for the first week of January.

If you will kindly inform me how much more is due, I will remit.

The old number is "A.L. 478," but as I am a resident in London, it will be only fair to register it in this county and shall therefore be glad if you will kindly allot me a fresh number.

Faithfully yours,
A. A. YOUNG.

A representative called on September 24th in answer to this letter and saw the car. It had only been used for trial runs and was then being laid up until October. He saw clearly that it was not in use, being partly dismantled.

London County Council.
Comptroller's Department, Local Taxation Licences Branch,
23, Cockspur Street, S.W.,
October 4th, 1912.

Sir,—The Council having had under consideration a report from the local district collector that you kept a motor car without proper licence on September 24th, 1912, has ordered that proceedings be instituted against you for the recovery of the penalty incurred; but I am directed to acquaint you that proceedings will be stayed on your immediately taking out the necessary licence (if same has not been taken out subsequently to the date referred to) and forwarding it to this office for inspection.

I am to point out that unless you comply with the terms above stated within 10 days from the date hereof, it will be assumed that you prefer that your case shall be heard in Court. The penalty for keeping a carriage without a licence is £20.

Your letter of the 21st ult., addressed to the Clerk of the Council, was referred to me and I instructed Mr. Barnes, one of the Council's assistant collectors, to call upon you. Mr. Barnes saw you on the 24th ult. and explained the matter to you. You then admitted ownership of the car, that you purchased it on August 31st last, on which day you ran the car to Clacton and returned with it the next day.

The Council has no authority to relieve you from the payment of the licence duty and as you cannot subscribe to a part-year declaration to the effect that you first kept or used the car on or after October 1st you are not entitled to a licence at the lower rate.

I enclose another form of declaration.

I am, Sir, your obedient servant,
H. E. HAWARD, Comptroller.

A. A. Young, Esq.

283, Regent Street, W., October 5th.

Sir,—I am in receipt of your letter of the 4th inst., from which I learn that although your representative saw on his visit to the above address on September 24th, 1912, that the car I had written to you about was not being used and was in such a condition (being partly dismantled for repairs) that it could not be ready until after October 1st, that your Council has ordered that proceedings should be taken against me unless I take out a licence within 10 days of the date of your letter.

I presume that this allowance of time would be until the evening of Monday, October 14th, 1912.

You do not state what amount of duty you claim and I should be much obliged if you would kindly inform me on this point, as the form you enclose states that the duty on 33-40-h.p. cars is 10 guineas per annum. Mine is marked 35-h.p., but being of the 1905 type Daimler has large bore and stroke.

I understand that the Treasury have recently decided to favourably consider any applications from owners of these cars as the tax is, on the present rating, so utterly unfair to them.

Please state, therefore, whether you claim a full year's tax (although half-yearly licences are granted from October 1st, and with the exception of the trial runs, the car was not taken into use until after that date).

Also, whether you claim on the 33-40-h.p. rate (£10 10s. per annum) or 40-60-h.p. rate (£21 per annum).

If the latter case, will you be satisfied with the 10 guinea tax, pending the result of my appeal to the Treasury?

Also, whether you intend to allow the rebate of 4 guineas I have already paid in the tax on the small electric phaeton which I used for one day in the present year and the licence of which was forwarded by me to you with my previous correspondence.

Faithfully yours,
A. A. YOUNG.

The Comptroller, London County Council.

London County Council,
23, Cockspur Street, S.W., October 9th, 1912.

Sir,—In reply to your letter of the 5th inst., I beg to acquaint you that your car being a 4-cyl. of 134 mm. is rated under the Treasury formula at 44·5-h.p., therefore the licence duty payable thereon is £21. I have already pointed out to you that as you cannot subscribe to a declaration to the effect that you first kept or used the car on or after the 1st inst., a licence at the lower rate cannot be issued to you, and until the law is altered the Council must administer the law as it stands, and cannot enter into any arrangements to receive less than the amount of duty payable under the statute.

If you will fill up a form of declaration and return it to me, together with the enclosed licence duly endorsed by you, and a cheque payable to the London County Council for the balance of duty, the £4 4s. already paid will be allowed.

I am, Sir, your obedient servant,
A. A. Young, Esq. H. E. HAWARD, Comptroller.

283, Regent Street, W., October 14th.

Sir,—With reference to our previous correspondence respecting Daimler car, A.L. 478.

In compliance with your demand I now enclose cheque £16 16s. with surrendered Licence No. AG 8509 and shall be glad if you will kindly send me the fresh licence.

I fully realise the fact that it is not in your power to amend the law but only to see that the conditions of it are complied with, but I still maintain that I am not legally liable to pay a tax for the whole year and I only send this cheque under strong protest.

On receipt of the fresh licence it is my intention to immediately lay all the facts before the Treasury.

The special ground of my complaint is that I am being treated in a totally different manner to the treatment accorded to the original

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owner of the car, who is a private individual (not a dealer in cars), like myself. He paid no tax because the car was laid up out of use. The trial runs were absolutely genuine and then the car was again laid up for alterations and repairs, not being taken into use until October.

Although I was the owner of the car after August 31st, I was in no different position to the original owner and was not legally liable to pay the tax any more than the original owner was, until I took the car into use in October when the half-yearly rate commenced.

Your representative who called on September 24th and saw the car on that date was quite convinced that it was not in use, being partly dismantled and in the hands of the workmen.

I used the car for the first time on Monday, October 7th, 1912. If it is the law to demand tax for twelve months under above-mentioned conditions, it most certainly is not justice and the law ought to give the power to Sir Laurence Gomme or yourself to be able to use discretion in such matters so that such unfairness as has been shown in my case and in the case of Mr. Leonard Bidwell, reported in the *Daily Telegraph* of October 4th last, could not be possible. Such a report makes thousands of people feel that such a law, which is not justice, is a disgrace to Englishmen.

My remarks, I need scarcely say, are not personal but in strong protest against the condition of the law.

Faithfully yours,

H. E. Haward, Esq. A. A. YOUNG.

The declaration form was duly filled up and enclosed in my letter to the Clerk of the London County Council, on September 3rd last.

Official Tests Necessary for Motor Car Lighting Sets.

SIR,—For some two or three years now I have been experimenting most carefully with the various forms of lighting in use on motor cars, with a view to ascertaining what lighting sets enable one to drive by night with safety to oneself and other users of the road at the same speeds as one habitually drives by day.

These experiments have convinced me of the amazing variety of ideas concerning what constitutes good motor car lighting, and it has become quite obvious to me that many lamp and lighting outfit makers or suppliers are not practical motorists.

The most modern lighting system, at any rate for powerful cars, is, of course, the electric light, and it is with this form of lighting only that I will deal. In regard to the various electric lighting systems upon the market, there is a curious discrepancy both between their relative values as driving lights, and also between their effective efficiency and that praised by their sellers or makers.

It seems to me absolutely necessary, for the protection of the buying public, that independent official tests should be held so as to give information on a number of points, some of which I will now enumerate.

1. The distance at which a dark-clothed pedestrian can be seen distinctly on a dark road.
2. The width of lighting beam at distances of 20, 50, 150, 200, 250 and 300 yards from the car, the test of lighting beam area being the distinct visibility of dark-clothed pedestrians on a dark road.
3. The amount of watts available for lighting at engine speeds of 200, 500, 1,000 and 1,500 revs. per minute respectively.
4. Prior to admission to tests, competitor should be bound to state his claims as to the tests enumerated above.

It appears to me that most electric lighting sets have not a generator sufficiently powerful to supply the amount of electricity to the accumulators that is taken out of the accumulators during use. With many of the generators sold, you may require to charge during the day time, for the sake of having sufficient light when required at night. That is to say, the lamps are taking more electricity out of the accumulators than the generator is putting into them.

The results of my investigations show that there are a large number of lighting sets being sold and purchased which are thoroughly inefficient, and therefore, for that reason, dangerous to those driving behind them and those meeting them on the road, and the time seems to me to have come for a responsible body to carry out clear and decisive tests.

I think a little correspondence in your columns as to the points desired by various users would act as a guide to an official body as to the desiderata of the public, and the suggested tests might then be amplified on agreed lines.

S. F. EDGE.

THE DISADVANTAGES OF PARAFFIN.*

By T. B. BROWNE, President of the Institute of Automobile Engineers.

THE disadvantages of paraffin so far have been found to be the smell from the exhaust, its well-known tendency to "creep" and the carbon deposit left in the combustion head whenever the mixture is imperfect. Excellent results have so far been obtainable with paraffin with engines running on steady loads, but the extremely irregular load of an automobile engine has so far proved a serious obstacle to the proper carburation of paraffin and the heavier oils. There is also the possibility that the price of any substitute will rise as soon as the demand for it becomes great, just as has been the case with the price of the heavy oil used in the Diesel engine which was sold not so long ago at 38*s.* per ton, whereas it has now risen to over 80*s.* per ton. However, it cannot be gainsaid that the whole question is one of supply and demand, and therefore the greater the number of satisfactory substitutes for petrol that are found the lower the price is likely to be. The enormous increase in the number of commercial motor vehicles that we are about to witness should not tend to raise the price of petrol for pleasure cars, if we are able to use a heavier oil as fuel for the propulsion of the former. Petrol is distilled off the crude oil at temperatures ranging from 50° C. to 150° C., but if we can use an oil distilled off at a temperature range of from 50° C. to 200° C. the supply would be increased three fold, so that it can readily be perceived how this would affect the price to the consumer. Experiments are now being undertaken with the idea of bringing this about, and it is hoped that they will prove successful for the reasons mentioned above. The tendency all along has been to use a heavier spirit owing to the comparative scarcity of the lighter constituents of petroleum. It will be remembered by many of the early pioneers of automobilism that with the crude carburettors originally available it was absolutely necessary to use petrol of not greater density than 0·680 specific gravity, and when the 0·700 spirit was first introduced great difficulty was experienced in starting motors with it until carburettors were improved.

* Abstract from the Presidential Address.



BOOKED FOR AN HOUR'S "REST."—Mr. S. F. Garrett and his passenger in the Hour Side-Car Race at the Brooklands last meeting of the season.

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.

The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.

Messrs. P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.

Deputy.—Mr. A. HOLMES.

General Secretary.

ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. J. Cates, vice-president; Mr. Holmes, deputy-chairman; Mr. Pye, trustee; committee, Messrs. Tipper, Kahn, Withill, Shaw, Holland No. 2, Moores, Emmerson, Adey, Wallis and Tyler.

The minutes of the previous meeting were read and confirmed.

N.S.C. Garages.

Application for honorary membership was made by Messrs. Oates and Sons, Wimbledon Motor Works.

Mr. Pye, in proposing that the application be granted, said he wished every garage proprietor had the interests of chauffeurs at heart, as shown by the friendship prevailing between Messrs. Oates and their employees. The secretary endorsed the remarks of Mr. Pye, and the application was granted.

Parliamentary Campaign.

The circular to magistrates by the Home Secretary was discussed, many members of the committee scenting a grave danger to the chauffeur in the suggestion as to suspension of licences. The chairman said the circular would probably constitute the opening of further unjust sentences by the great unpaid sitting on the local Bench of Justices, and the Society should go seriously into the question. After considerable discussion the committee unanimously accepted the resolution by Mr. Moores, seconded by Mr. Tyler, that the opinion of the President and Vice-Presidents should be taken in regard to the circular issued by the Home Secretary, the secretary to report for further debate.

Clubroom.

Arrangements were made for Wednesday's social.

The secretary reported the delivery of 21 books sent by Mr. T. A. McCrea, for the library. The committee expressed their thanks to Mr. McCrea for his kindness.

A letter was read from Mr. W. M. Letts accepting the post of trustee (received with acclamation), also letters from Mr. Farrer, *re* subscription, Mr. A. Johnson, *re* organisation in Sheffield, *The Chauffeur* newspaper, Mr. F. Hanson, of Clitheroe, Mr. A. Barker, of Birmingham, and Mr. H. D. Smith, Hebden Bridge, *re* handbook.

Review of Events.

With reference to the circular by the Home Secretary. It appears to be a document which may be read both ways. It is the outcome of the efforts put forward by the daily press.

In reporting every accident, no matter how trifling, and letters published dealing with street traffic, and the danger to pedestrians, from irresponsible persons who know little about the subject, having viewed it only from one point. There can only be one end to the business, and that the passing of a new Motor Car Act to meet the requirements of the increased motor traffic, and when the time arrives for tearing up the present obsolete Act, it will behove chauffeurs to combine in order to be assured that the many unjust clauses in the present Act are not only removed, but also to make it impossible for others to be added. The Society is assured of many supporters in the House of Commons, but the pressure must be applied from all over the country, therefore it becomes a duty for chauffeurs to unite. Don't wait for the declaration of war, join the ranks now, and enable the Society by force of numbers to demand fair legislation, and not through lack of numbers to ask for justice.

Demanding and asking are two different propositions when dealing with the legislature.

Accepted for Membership.

Henry D. Thorpe, Twickenham	W. G. R. Begg, New Galloway
Henry Russell, London, S.W.	P. Chamberlain, London, S.W.
Emil H. Menne, Hampton Hill	Walter Woodward, Bowness-on-Windermere
Walter Payne, London, N.W.	
William Baugh, Chester	George P. Tillyer, London, S.W.
W. P. Newman, London, S.W.	Charles H. Peck, London, S.W.
William Sutton, London, S.W.	James A. Cleveley, London, W.
Louis Morin, London, N.	John W. Lewis, Parton, N.B.
F. E. Dalby, London, S.W.	Leo Willey, Penrith
Walter W. Hubber, London, S.W.	James E. Digance, Worcester
Charles H. Harvey, Wokingham	Percy G. Gare, London, S.E.

Applications for Membership.

Henry Heald, London, S.W.	Thomas Lydiatt, London, W.
Ernest W. Bacon, Purfleet	Thomas H. Whittaker, London, N.W.
Walter Yardley, London, N.	

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally. ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed

Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.

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Traffic Board Must Wait.

INTERROGATED in the House of Commons last week by Captain Jessel, Mr. McKenna, the Home Secretary, was unable to see much prospect of Parliament having time to discuss a Bill to set up a Traffic Board for London, but he promised to consult his colleagues, the Board of Trade and the Local Government Board, on the matter.

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Chauffeur's Experiences

Chauffeurs are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The Auto., 44, St. Martin's Lane, Charing Cross, W.C.

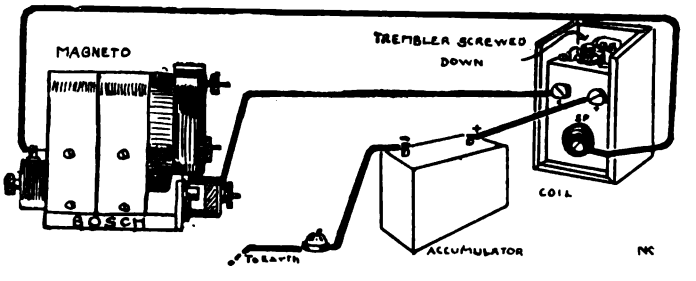
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Another Magneto Problem.—The two problems contained in your page of Chauffeurs' Experiences of October 12th, recall to me another problem referring to high-tension magnetos which some time ago was eagerly discussed by the drivers in this neighbourhood. I have since been told that it forms one of the test questions contained in the examination papers of a certain well-known authority, but I hope that I am not doing any harm in giving what I consider a solution of the problem.

The question is, provided the armature of a high-tension magneto has broken down, no other ignition is fitted to the car, and the driver is unable to obtain a spare of any description. His car is equipped with electric lighting, and he has a large and fully charged battery at his disposal. At the local cycle shop, where he enquired whether any spares are obtainable in the neighbourhood, he is shown a high-tension single trembler coil. Is it possible to rig up the coil in such a manner that the engine can be made to run and take the car under its own power to a place where a repair can be effected? I have asked this question of a great many chauffeurs of old standing, but so far none of them have thought it is possible. Although I have not put my solution to a practical test, I cannot see any reason why it should *not* work, and if ever I should have the misfortune of being stranded under these circumstances, I should not hesitate putting the following scheme into operation.

Provided that the armature of a high-tension magneto has broken down, which I admit is a very rare occurrence indeed, and I should be able to obtain a high-tension trembler coil, I should rig this up in connection with my lighting accumulator and feel confident that I should get my car to a place of safety. First of all, I should take out the high-tension collector brush from its holder, so as to disconnect the armature from the high-tension leads. After having made quite sure that it is really the armature which is at fault, I should take it out of the magneto and disconnect the primary winding at the inner end of the screw that holds the contact-breaker in position, and which also acts as a conductor of the low-tension current. It can be done easily by simply cutting the insulated wire which is seen on the armature side of the condenser casing. This entirely cuts out the armature, so that it cannot form a path for any current leaking to earth. I next disconnect the switch wire of the magneto and wire up as shown in the appended sketch. From the negative pole of the accumulator I take a wire to the switch, and from the switch to earth. The positive terminal of the accumulator is then connected up to the positive terminal of the coil and the commutator terminal of the coil to the low-tension screw on the magneto which in the ordinary way serves to hold the switch wire. By doing so I complete the low-tension circuit of the ignition, in which the flow of current will be as follows: from positive of accumulator to coil, through primary winding to low-tension terminal, thence through the little carbon brush inside the contact-breaker cover on to the screw holding the contact-breaker, through the insulated part of the make and break, across the platinum points to the rocker arm, and from there to earth.

It only remains to connect up the remaining high-tension terminal of the coil to the bridge leading the



current from the collector brush to the distributor of the magneto and the wiring is completed.

There is, however, the difficulty that at the moment of firing, contact is *broken* at the make and break of the magneto, while in an accumulator circuit with trembler coil, contact should be *made* at the firing point. I therefore have to convert the trembler coil into a non-trembler by screwing down the trembler screw, and locking it in this position that the platinum points remain in contact. With this non-trembler coil, however, it is quite possible to obtain a good spark at the moment contact is broken at the make and break, so that the charge will be fired at the correct moment.

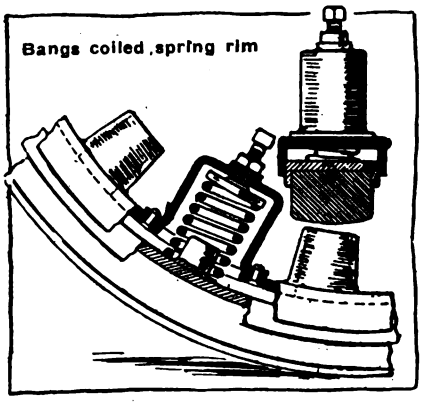
When the existing magneto switch is used in this circuit the wires have to be connected up in such a way that contact is made, when the switch is on and *vice versa*.

I am quite aware that at low speeds in particular an enormous amount of current will be wasted on account of the fact that the platinum points are in contact for most of the time, and only separate for a very short instance at the moment of firing. Provided, however, that the coil is well constructed, and is fed by a battery with a high discharge rate, as most of the lighting batteries are, I see no reason why this arrangement should not work satisfactorily.—*H. Newstead.*

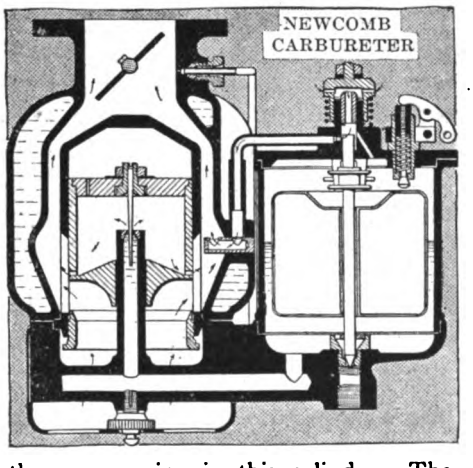
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FOREIGN MISCELLANY.

Bangs Coiled Spring Rim.—The wheel felloe is equipped with a number of coiled springs situated between the points where the spokes are attached to the felloe; the springs are contained in inverted cups fixed to the felloe and their free ends bear against the telescoping rim which floats in the felloe. This rim carries the solid tyre, the method of attaching the latter to the rim being shown in the upper right corner of the drawing. The head of the bolt, which holds rim and tyre together, extends into the open end of the spring cup and bears against the coiled spring.—*The Automobile.*



The Newcomb carburettor.—The device uses the usual two-part body, as shown in sketch, consisting of a float-chamber and a mixing-chamber. The needle supply-valve is adjustable at the top of the chamber by a thumb-nut provided with passages for the admission of the fixed air supply, which is led into the mixing-chamber through a tube and air nozzle. The gasolene is led from the float-chamber to a vertical standpipe, in the centre of the main body, surmounted by a needle-valve nozzle. Air is taken in below and around this standpipe, and deflected to the annular mixing-chamber by the bottom of the floating piston-valve that constitutes the feature of this carburettor. This piston is vertically disposed within an inverted cylinder, which forms the core of the main body, and acts as a dash-pot to render its movements positive and steady. A small hole is drilled in the piston-head, to relieve the compression in this cylinder. The lower portion of the piston slides upon the standpipe, and is so formed on its lower surface as to render the passage of air upward from the intake free. Attached to the piston-head by an adjusting nut, a needle-valve extends downward through the spray-chamber to its seat at the top of the gasolene nozzle.

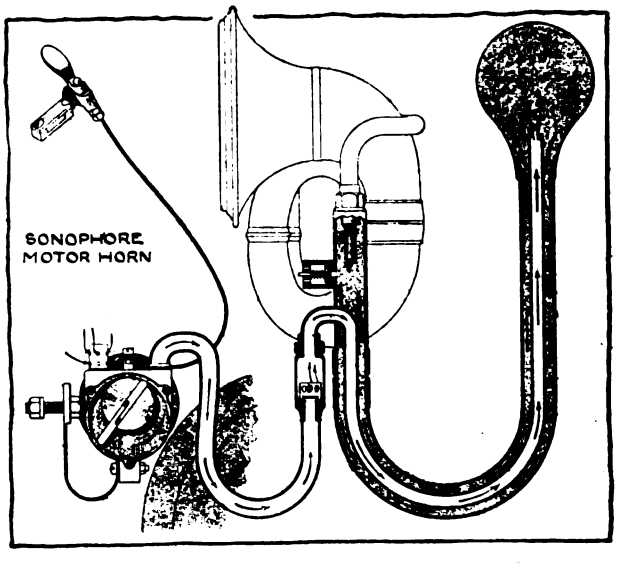


In operation, the suction of the engine as the throttle is opened raises the floating piston, admitting more gasolene into the spray-chamber, from whence it is drawn as vapour through openings at the base of the piston into the mixing-chamber. The rising action of the piston, furthermore, enlarges the air inlet area and raises the vapour outlets in proportion, thus always injecting the vapour above the column of air, ensuring a homogeneous mixture and the minimum of condensation. A collar at the bottom of the combustion-chamber above the gasolene line is provided for idling adjustment, and when once adjusted for a certain motor never need be changed.

The carburettor is liberally water-jacketted, and for starting is equipped with a priming plunger and an auxiliary nozzle, located in the throat, which is automatically cut out, when the throttle is opened. Adjustment of the mixture is made entirely from the dash, an indicator on the float chamber cover showing the adjustment at all times.—*Motor Age.*

We seem to see something more than a mere casual resemblance in this device to the Scott-Robinson carburettor!

An Ingenious Motor Horn, called the Sonophore, has been placed on the market in France. It consists of an ordinary bulb horn which can be blown by hand, but, in addition, there is a small rotary pump of the sliding-shutter type, which is driven by the engine fly-wheel when its pulley is brought in contact with the former by means of a foot- or hand-operated lever and wire. This pump sends air to the horn *via* the rubber bulb, which, therefore, serves as a reservoir, and should materially assist in rendering the tone more even.—*Omnia.*



Tank Shut-off.—One manufacturer at length has arrived at a happy solution of the gasolene tank shut-off problem, and one that is likely to be imitated, in principle at least, before many months have rolled by. By a simple arrangement, the shut-off handle is brought up by the driver's side and carried alongside the gasolene gauge, so that the fuel may be drawn from either the main or supplementary tanks, or cut off altogether, without leaving the seat. Besides this obvious advantage, the device solves the one valid objection to placing the shut-off in such a position that it can be got at without lifting the floor-boards. It has long been recognised that, as a precaution in case of carburettor fires, leaking float-valves and accidents, the shut-off should be instantaneously accessible; but the fear that its very accessibility, if the valve were located outside the body, would tempt small boys to tamper with it, has restrained many makers from adopting such a device. Valves that can be operated only with a special key likewise have been in disfavour, as not serving invariably in an emergency.—*Automobile Topics.*

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MOTOR CYCLE MATTERS.

By "MULTI."

I FEAR that I owe an apology to my readers, if perchance I have misled any, and also to a brother scribe for having, unwittingly, of course, assumed a *nom de plume* that has, I find, already been appropriated for some two years past. My excuse must be that I have, almost from the birth of motor cycling in this country, so actively followed the pursuit of the pastime itself, and the study of its literature, as to almost preclude the possibility of committing to memory the whole number of the various pseudonyms under which some of the particularly able notes and articles have appeared in the contemporaneous Press.

Having thus tendered my apology and made my excuse, there remains but the matter of selecting a more or less appropriate pen-name proper to myself. The task is not an easy one, and if in selecting that of "MULTI," I am again poaching on someone else's preserves, I trust that every leniency will be shown me by the injured party; at least, I can think of none more appropriate, for whether it refers to speed-gears, the number of machines I have possessed, or the number of cylinders with which some of those I have ridden have been fitted, it is equally applicable, and I leave my readers to take their choice as to which of the three they prefer the name "MULTI" to apply.

A New Cycle-car.

In view of the increasing interest taken by the motoring public—carists and cyclists alike—in cycle-cars, the illustrated description in this issue of the AUTO. of the latest recruit to the ranks, the "Humberette," built by a firm of world-wide reputation, Messrs. Humber & Co., should be of uncommon interest.

The machine is in no sense a freak; on the contrary, it seems to me to be a particularly sensible blend of features that have proved themselves thoroughly satisfactory in car and cycle construction respectively, as will be gathered from a perusal of the article referred to, where it will be seen that the power unit and frame are of a type common to motor-cycles, while the transmission system is standard car practice throughout, for which reason the term cycle-car appears to me to be particularly applicable to the new Humberette.

There is thus sufficient of the motor-cycle about its construction to enable motor-cyclists to form an estimate of the probable cost of upkeep and running expenses, which are, after all, the points of most importance to the man of moderately small means, among whom, presumably, the cycle-car is expected by manufacturers generally to find most favour. Certainly, moreover, the initial cost of the Humberette—£125, complete with hood and wind-screen—backed as it is by the reputation of the makers, is an attraction not to be gainsaid.

It is now two years ago since designs for this machine were first put in hand, and for many months past a completed model has been undergoing a 15,000-mile road trial in different parts of the country. It was not until the makers were satisfied with the behaviour of every detail of its construction, however, that the machine was placed on the market, which should be an excellent guarantee of good service to a purchaser.

The New Taxation.

To my mind the outstanding argument against the proposed new scheme, and which has not been accorded one half the prominence the point deserves, is that the majority of motor cycles are merely week-end pleasure vehicles, as distinct from the everyday use to which the average car is put. Many motor cyclists numbered amongst my acquaintances are, indeed, precluded from using their machines more than one day a week, their ordinary vocations, in spheres entirely remote from any connection with the pastime, claiming the whole of their attention for the remaining six days, except, perhaps, for a brief fortnight in the holiday season. Others, again, have the advantage of one and a-half days a week, but even so, I know that many of them find that at the end of a year their total number of rides has not exceeded fifty. At the high average of 100 miles per ride, this gives a total annual mileage of 5,000, which, compared with that of the majority of cars, is, one might almost say, inconsiderable. In hundreds of cases, moreover, these figures are not reached by a very wide margin.

It is this fact which appears to me to have escaped the proper consideration of the Treasury Committee, and which constitutes such a grave injustice to the motor cyclist as a class. Surely it would be more equitable to tax both cars and cycles wholly by petrol consumption on the same scale, as I believe was advocated by Prof. Archibald Sharp; then the amount payable in taxation would be in direct proportion to the mileage covered, and approximately so in respect to horse-power and weight. This would, it seems to me, remove nearly all the bitterness now felt by manufacturers and users at the Committee's recommendations.

Refractory Valve Caps.

Why does not some accessory firm market spanners really suitable for unscrewing valve caps? These, as every motor cyclist knows, have a habit of becoming very firmly fixed in the casting, and tremendous leverage is generally required to give the cap a start. The query arises through a predicament in which I found myself during a recent week-end. Right out in the wilds of East Anglia, miles away from the nearest habitation, I had the misfortune—the result possibly of hard driving—to break an exhaust valve, the stem shearing at the cotter hole. Naturally I had a spare valve, likewise a spanner that had been specially made for me by the makers of the machine I was then riding—a P. and M.

I found the leverage insufficient, however, and had recourse to blows, from the shifting spanner, on the end of the handle. This merely resulted in smashing the special spanner encircling the cap, much to my chagrin. At that instant a rider of a Morgan runabout—to whom many thanks—stopped to render assistance; but, even with the tools at the command of both of us, we were unable to budge the refractory valve-cap. We had nearly exhausted our paraffin, patience, energy and temper, when we heard a subdued rumbling and clattering from afar, which presently resolved itself into a huge steam commercial vehicle of the traction-engine breed. Joy! Surely the engineer in charge of such a delicate piece of mechanism as this would have something in his tool-box that would be of assistance. True enough; a big ¾-in. spanner with a handle about 18 ins. long, a 2-lb. hammer, and a few minutes' perseverance, and I had the satisfaction of feeling the cap "give." After which it was not many minutes before we were all once more on our several ways.

Now my contention is that the usual spanner is totally

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unfitted for a job of this sort. What is really wanted is a spanner of very substantial proportions which completely encircles the cap. This spanner should be 8 or 9 inches long, and should have an attachment by which the effective length could be brought to at least twice this value, so as to render it easy to bring a good leverage to bear; leverage being always better for the engine-casting than blows. Such a thing as I have in mind is perfectly simple, would not take up much room, would go into the average tool-bag comfortably, and would be a real boon to all motor cyclists. But it should be of really substantial construction.

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—*Chester-Wrexham Road.*—Under repair at Cresford 9 miles south of Chester, roller at work, two months to complete.

Manchester-Chester Road.—Holford Bridge, 3½ miles from Northwich, is in a dangerous state on the left-hand side coming from Northwich, it being filled in with loose stones and cinders.

GREAT NORTH ROAD.—Gas main being laid down at Knebworth—special caution required here. Full width of road under repair with roller working 1 mile from Grantham, on the Melton Road.

LANCASHIRE.—Members are requested to slow through Garstang, 10¾ miles north of Preston.

Blackpool-Poulton Road.—Members are specially requested to drive carefully through Poulton le-Fylde and district.

YORKSHIRE.—*Guisborough-Redcar Road.*—Road closed owing to the reconstruction of Tocketts Bridge, 2 miles from Guisborough. Alternative route *via* Marske, and turn right into Skelton Ellers.

Leeds District.—Controls are still working at Moortown, Leeds; Thwaite Gate, Runslet, and through the 10-mile limits in Ilkley and Burley-in-Wharfedale. Care is necessary in the suburbs of Leeds.

EAST.

Norwich-Cromer Road.—Extreme care should be used when crossing the temporary bridges at St. Faiths, Hovingham and Ingworth, which are narrow and only suitable for light traffic.

SOUTH.

BATH ROAD.—Members are requested to slow through Slough and Maidenhead. Care is needed at Navvy Bridge, Chippenham, as there is a nasty curve here. At Maidenhead the road is closed at Castle Hill to All Saints' Avenue; alternative route, St. Mark's Road and All Saints' Avenue.

ESSEX.—*Woodford.*—Special caution is advisable between police station and Bancroft schools.

Loughton.—Night control working quarter mile from Epping.

LONDON DISTRICT.—On account of timing operations special care is necessary at Regent's Park Road, N.W.; near Church End Station, Finchley; Golder's Green; between Redcliffe Gardens and The Boltons, Earl's Court Road, S.W.; Victoria Embankment; Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; Croydon; Purley; between Wimbledon and Ewell; Hounslow-Staines; Hounslow-Colnbrook; Roehampton; Putney Heath; Harlesden; Maida Vale; Highgate; Holloway; Lewisham, High Street; Sudbury to Harrow.

MIDDLESEX.—Control working on the Staines-Sunbury Common road.

Wood Green.—For the same reason special care is necessary at the junction of Bounds Green Road and Jolly Butchers' Hill.

Uxbridge Road.—Controls are likely to be working between Southall and Uxbridge; between Hampton and Hampton Court Bridge on tram lines.

OXFORD.—Controls likely to be working at the following places: High Street, St. Aldates Street, New Road, Botley Road, all of which are in the ten-mile limits. Controls also in Woodstock Road, Southmoor Road, and the main Oxford-London road *via* High Wycombe at the "Three Pigeons" near Wheatley.

SOUTHAMPTON ROAD.—Controls are working at night through Egham.

SURREY.—*Portsmouth Road.*—Flashlight controls are working between Kingston and Esher. Between Peasmarsh and St. Catherine's Hill, Guildford, remetalling is now proceeding.

Eastbourne Road.—Special care is advisable as a control may be working near Kenley police station and the gas works, Whyteleafe.

WEST.

DEVON.—*Plymouth-Moretonhampstead Road.*—Timing in hand at Two Bridges.

CARDIFF DISTRICT.—Special caution is needed in Cathedral road from Cowbridge road to tram terminus; on the Cowbridge-Swansea road at Canton; at Rumney, on the Newport road; Leckwith Common, on the Penarth road; also at Dinas Powis and Eastbrooke, on the Cardiff-Penarth-Barry road, and from Commercial Street to Waterloo Road, on Cardiff-Newport road.

GLOUCESTER AND BRISTOL DISTRICTS.—*Bristol-Weston Road.*—Controls are working at or near Long Ashton, Bourton Tunnel, Wraxall, Hailsee, &c. Under repair at Star, 13 miles south of Bristol, lighted at night.

Cheltenham-Oxford Road.—Special caution is necessary at Andoversford, as bridging operations are in hand, and there is a bad turn just here.

MIDLANDS.

BIRMINGHAM DISTRICT.—Control likely to be working three miles east of Gailey cross-roads, Aston Hall, in Watling Street, also control likely to be working on Watling Street at Worley 4½ miles west of the Gailey cross-roads.

Stafford-Lichfield Road.—Full width of road under repair, roller working, between the 3rd and 4th milestones north of Lichfield.

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Speed limit orders (ten miles) have been applied for by the Westmoreland County Council for roads in the parishes of Arnside, Bowness-on-Windermere, Windermere and Grasmere. The last date for lodging objections is October 31st. Will members able to assist the Association in this matter kindly send their views to the secretary as early as possible.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

New Members—Important Notice.—For the benefit of motorists who wish to join the Association at once, the Executive Committee has granted a special concession. An immediate payment of £3 3*s.* will cover membership for the next eighteen months—up to April 30th, 1914. A similar concession is also made to motor cyclists, who may join upon similar terms, upon payment of 15*s.* 6*d.*

Olympia.—By the courtesy of the Society of Motor Manufacturers and Traders, the Association will have a Stand at the forthcoming Olympia Motor Show. At this Stand, representatives of the various departments of the A.A. and M.U. will always be on duty to assist and advise members.

Touring Department.—Members having reported delay for several hours in loading and unloading cars at Belfast, the Association brought such complaints before the notice of the responsible authorities. The General Managers of the railways concerned have now given special instructions that motor cars must be loaded or unloaded promptly by means of gangways, and it is not likely that any unnecessary delay will be experienced by members at this port in the future.

Speed Limits.—The Association will be represented at the forthcoming speed limit inquiries:—Richmond (November 7th), Stanstead (November 13th), Witham (November 15th).

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L.C.C. and Slow-Going Traffic.

EVIDENTLY the London County Council are doing what they can to assist in solving the traffic problem of the metropolis, at any rate so far as the obstruction caused by slow-moving traffic is concerned. At the last meeting of the Council of the Roads Improvement Association, a message was read from the L.C.C. stating that they were framing by-laws—under the powers conferred by Section 23 of the Municipal Corporation Act, 1882, and Section 16 of the Local Government Act, 1888—to compel slow-going traffic to keep to the near side of the road. This action is being strongly supported by the R.I.A., who have been in correspondence with the L.C.C. on the subject for some time.

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RACES, RECORDS, AND TRIALS.

Arrol-Johnston Breaks Record.

At Brooklands on Tuesday, the 11·9-h.p. Arrol-Johnston car, driven by Mr. James Reid, succeeded in beating its own class records up to six hours. Throughout that time the car ran very consistently, generally doing 2 mins. 39 sec. for each lap. 300 miles were covered in 4 hrs. 51 mins. exactly, while 368½ miles were traversed in the six hours. In five hours 305 miles 1,146 yards were covered, better than the old six-hour record.

New Sunbeam Records.

In our last issue we were able to just briefly record Resta's success in his attack, on Tuesday week, on the one hour and 100 miles world's records. The car was a 30·1-h.p. 6-cylinder Sunbeam, which captured the 50 miles world's record on September 9th. Getting away from a standing start, Resta covered the first lap in 2 mins. 6 secs., but for the second round his time was 1 min. 50 secs., and thereafter he kept pretty close to that time lap by lap. In the hour 92 miles 797 yards were covered, being an improvement of 2 miles 1,665 yards over the old 60-h.p. 6-cylinder Thames record, which, by the way, was made from a flying start. Continuing, Resta ran to 100 miles in 1h. 4m. 54·16s., beating the world's record by 1 min. 59·33 secs., his fastest lap being at the rate of 97 m.p.h. Dunlop tyres and Bosch magnetos were fitted to the car and Pratt's spirit was used.

Another Paraffin Carburettor on Trial.

On Monday last, a 3,000 miles trial, under R.A.C. auspices, was commenced with a Standard Petroleum Carburettor, entered by the Standard Petroleum (Parent) Carburettor Co., Ltd., 171, Queen Victoria Street, London, E.C.

A Scottish Motor Track.

We understand that some surplus land belonging to Argylls, Ltd., Alexandria, is now being surveyed with a view to ascertaining the possibility of utilising it for a motor track, of a length approximate to that of the Brooklands course at Weybridge.

Sunbeam-Vauxhall Match Off.

In view of the recent splendid achievements of Sunbeam and Vauxhall cars, Mr. Gordon Watney recently offered a prize of £100 for a ten-lap race or a series of matches between the 2,996 cc. Sunbeam car and the 2,983 cc. Vauxhall car. The Sunbeam Co. have, however, decided not to accept the proposal, and so the match will not take place.

The Tour of France.

The rules have now been published for the second Tour de France which is to be held from March 1st to 15th next year. In the main, the competition will be on "sealed bonnet" lines, seals being fixed to the radiator, the bonnet, the undershield and the floor boards. These seals will be renewable day by day, but any breaking of them during the daily stage of between 300 and 400 kiloms. will entail the loss of 2, 4 or 3 points respectively. Ten minutes will be allowed each morning for filling up tanks and adjustments, and the seals will then be replaced for the day. In addition, seals will be placed on the front and back axles and the steering-gear, and any breaking of these during the contest will entail disqualification of the car.

The competitors must keep to a minimum speed of 30 k.p.h., and they will be timed at various points in each day's stage.

To be eligible cars must be standard models shown in catalogues published previous to the Salon to be held next December, and the chassis price must not exceed 8,000 francs, £320.

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NOTES FROM NEW YORK.

At the Electrical Show recently held at Boston, Mass., in connection with the Third Annual Convention of the Electric Vehicle Association of America, some sixty electrical vehicles, including pleasure cars and commercial vans, &c., were shown by fifteen different firms. In the basement of the Exhibition, a model garage for electric vehicles was fitted up so that the visitors could study the best methods of storing and charging their batteries, &c.

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Standardisation is being recognised in high places, the U.S. Government having decided that all cars supplied to the Government must comply with a standard specification. A committee has been appointed to go into the matter, and draw up the specification which will be issued shortly. It is not contemplated to have simply one type of machine, but to embody many of the best features of standard makes of cars, and "to establish a rigid rule for the efficiency and lasting powers of parts.

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It is announced that the manufacture of the Elmore car, the only remaining conspicuous exponent of the two-stroke cycle motor system, is to be discontinued. No information has yet been published by the General Motors Co., which controls the Elmore firm, as to what will be done with the plant, but it will probably be utilised for producing a new car of a more conventional design. Repairs or replacements will be looked after from the Olds factory, at Lansing, Mich.

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The figures regarding exports during July last show that 1,635 cars, valued at $1,702,637, were sent out, as against 1,025 cars, valued at $1,104,807, which were sent abroad in July, 1911. These figures do not include 101 cars (as against 104 in 1911) which were sent to the American possessions—Hawaii, Porto Rico, and the Philippines. Canada took the largest share with 462 cars, Great Britain being next with 345, and British Australasia third with 209. The average value of exported cars was $1,041; but the average value of those sent to Great Britain was $669, whereas in July, 1911, it was $957. The average value of Canada's takings was $1,486, while the average value of the cars that went to Australia was $880. France and Italy each took 36 cars and Germany 22.

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For July last the figures regarding imports show a big decrease, only 64 cars being brought into the country as against 80 in 1911, while the value went down from $175,741 in July, 1911, to $155,251. France was the only country which showed any increase, sending 36 cars as against 22 cars in July of the previous year. Germany and Italy each sent half-a-dozen and Great Britain 5, the value of the latter being $8,810. In July, 1911, Great Britain sent 10 cars valued at $21,469.

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CARS AT OLYMPIA AND 1913 MODELS.

Benz Sohne (DARBY AND WEBER, LTD., 118, Great Portland Street, W.).

A NEW model Benz Sohne for 1913 will be found in the 17·9-h.p., which will have a 4-cyl. engine of 85 mm. bore and 115 mm. stroke, and a wheel-base of 9 ft. 8 ins. There will be two other 4-cyl. models, similar to last season's, a 16–20-h.p. 80 mm. by 130 mm., and a 20–30-h.p. 90 mm. by 140 mm. On all models the engines have enclosed valves, silent chain-drive to cam-shaft and magneto, and dual ignition. The chassis prices of these models are: 16–20-h.p., 9 ft. 8 ins. wheel-base, £380; 10 ft. 6 ins. wheel-base, £390. 17·9-h.p., £390; 20–30-h.p., 10 ft. 9 ins. wheel-base, £525. These prices include 820 mm. by 120 mm. tyres on all models.

Brasier (77 and 78, High Street, Marylebone, W.).

FOR 1913, the Brasier models will include four with 4-cyl. engines and one with six cylinders. In each case the cylinders are cast *en bloc*, and chain-drive is employed for the half-speed gear, except in the case of the 11-h.p. model, which has a gear-driven cam-shaft. This last-mentioned model also has a worm-driven back-axle, whereas the others have the usual bevel-drive. Many detailed improvements, such as the fitting of four-speed boxes, &c., have been incorporated in the design, and the bore and stroke of the 16-h.p. and 22-h.p. models have been increased. Warland dual rims and Michelin tyres are now fitted as standard. The full range of chassis with prices are: 11-h.p. (4 cyls. 67 × 110 mm.), £266; 12-h.p. (4 cyls. 70 × 120 mm.), £300; 16-h.p. (4 cyls. 85 × 140 mm.), £400; 22-h.p. (4 cyls. 100 × 150 mm.), £540; 24-h.p. (6 cyls. 90 × 140 mm.), £566. The three first will be on Stand 114 at Olympia.

Clement (CLEMENT MOTOR CO., LTD., 3, Leicester Street, W.).

CLEMENT cars (Stand No. 49). Olympia exhibits will consist of four complete cars and one chassis, including an entirely new model of 12–14-h.p. with a 4-cyl. engine of 75 mm. bore and 110 mm. stroke, the chief characteristics being chain-drive for magneto and cam-shaft, four speed gear-box, chassis price, £290; or complete with flush-sided two-seater body with a dickey seat at the back, Cape-cart hood, and folding wind-screen, and detachable wheel—which are fitted as standard to all models—£380. Other exhibits will include a 14–18-h.p. (4-cyl., 90 by 120 mm.) chassis, and two cars of similar power, one with an open body and the other with an inside-driven saloon body. The remaining model will be a 25–35-h.p. (4-cyl. 107 by 130 mm.) double cabriolet.

De Dion Bouton, Ltd. (10, Great Marlborough Street).

DE DION cars for 1913 will possess several modifications. For instance, the chassis frames are upswept over the rear-axle and the springs anchored underneath the axle-casing. It may be mentioned that this practice of underspringing was employed on De Dion cars as far back as 1899. The principal models for 1913 consist of a twin-cylindered 7-h.p.; a 4-cyl. 12-h.p.; two (medium and long wheel-base) 4-cyl. 14-h.p.; two (live rear-axle and cardan rear-axle) 4-cyl. 18-h.p.; two 4-cyl. 25-h.p.; two 8-cyl. 26-h.p.; and an 8-cyl. 50-h.p. One of the 25-h.p., one of the 26-h.p, and the 50-h.p. chassis have worm-drive from propeller-shaft to differential. Chain-drive is used for the cam-shafts, oil pumps, magnetos, &c., on all models. Olympia, Stand No. 78.

Delahaye (H. M. HOBSON, LTD., 16, Pall Mall, S.W.).

DELAHAYE cars will be continued practically the same as the 1912 models, and four types will be at Olympia on Stand No. 26, viz., one 9–11-h.p. 3-seated, inside-driven cabriolet; a 12–16-h.p. with standard torpedo body; a 16–20-h.p. polished chassis, and a 20–30-h.p. with a special type of three-quarter landaulette limousine body.

Lorraine Dietrich (45, Great Marlborough Street, W.).

THE Lorraine Dietrich programme for 1913 will include an entirely new high-powered car of 40-h.p., while the 12–16-h.p. and 18–20-h.p. will still be manufactured and remain the same constructionally as the 1912 models, the only alterations being in finish and minor details. Four cars, it is hoped, will be at Olympia on Stand No. 52—a 12–16-h.p. single landaulette, a 18–20-h.p. polished chassis, and another fitted with three-quarter landaulette limousine body, and a 40–75-h.p. chassis fitted with semi-racing torpedo body

Mercedes Cars (132, Long Acre, W.C.).

FOUR 1913 models of the famous Mercedes cars will be shown on Messrs. Milnes-Daimler Stand, No. 73. One of these will be a 45–50-h.p. polished chassis, whilst the others will include a 15–20-h.p. torpedo-type landaulette, a 25–30-h.p. torpedo-touring phaeton with sloping bonnet, and a 35–40-h.p. (poppet-valve engine) torpedo-limousine body. All these models are fitted with Ducellier electric lighting installations.



A group in connection with the Kent Automobile Club's visit to the Kent Colliery Co.'s Tilmanstone Colliery.—The visitors lunched at the model village hotel of Elvington, our group being taken outside the village club house, Mr. de Barri Crawshay, Chairman of the club, being seen bare-headed in the centre.

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'Bus Owners at the Home Office.

ALTHOUGH no official report is available as to the motor 'bus conference at the Home Office the other day, when the Home Secretary, Mr. McKenna, presided, there is no doubt that the problem of London motor 'bus traffic was discussed in a very practical way, and the representatives of the various companies expressed their willingness to co-operate as far as they could with the Chief Commissioner of Police. As congestion of traffic is responsible for the large number of accidents, it would seem that the remedy lies in the direction of limiting the number of 'buses plying for hire. Under the existing law the Home Office has no power to limit the number of motor omnibus licences issued, and if it is to be done fresh legislation will have to be undertaken by Parliament, which would undoubtedly meet with strong opposition.

Institute of Automobile Engineers. (Graduates Section.)

ON Friday, the 18th inst., the above Institution held their third annual Bohemian concert in the Council Chamber, Holborn Restaurant. The chair was taken at 8 p.m. by Mr. T. B. Browne, M.I.Mech.E., and then followed an extremely enjoyable evening. A long and varied programme was presented, each item of which was thoroughly appreciated by a fairly large audience. Miss Lena Copping's songs at the piano "went" very well, and she had to give several encores. Other favourites were Messrs. Rouse, Hurley, and Noel. Miss Marian Sheat sang charmingly, and Mr. G. W. B. Dollond gave some splendid recitations. A little surprise took place towards the end of the first half of the programme by the appearance of an old friend in Mr. Wood, who gave some favourite songs. The Committee are to be congratulated on their successful efforts to make the third concert so enjoyable.

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COMPANY DOINGS.

Rudge-Whitworth, Ltd.

THE directors' report states that the audited accounts, after providing for debenture interest, directors' fees, depreciation and ample reserves for bad and doubtful debts, show a net profit of £25,098. After adding the amount brought forward, £14,776, there is an available balance of £39,875. The directors recommend that this sum be appropriated as follows:—To pay a dividend at the rate of 6 per cent. per annum on the preference shares for the two years ended July 31st, 1912, £11,300; to pay a dividend of 5 per cent. on the ordinary shares (free of income tax), £5,000; to transfer to ordinary reserve fund, £10,000; to carry forward, £13,575.

NEW COMPANIES REGISTERED.

Home Counties Transport Co., Ltd., Effingham House, Arundel Street, W.C.—Capital £250,000, in £1 shares (150,000 7 per cent. participating pref.). Manufacturers and repairers of and dealers in wagons, motor cars, and other vehicles, &c. Under agreement with Generic, Ltd., of 42, Cheapside, E.C. First directors, R. Mortimer, W. H. Scruby, A. E. Stove, T. H. Nelson, J. Wehl, and W. Hammond.

W. and B. Woodyatt, Ltd.—Capital £20,000, in £1 shares (10,000 6 per cent. cum. pref.). Acquiring the business of livery stable and motor proprietors carried on by J. Woodyatt and T. Gwynn (executors of the late W. Woodyatt) and Bertha Woodyatt at Portland Road, Malvern. 5,000 shares.

Private Companies.

Hispano-Suiza Cars (Manchester), Ltd.—Capital £4,000, in £1 shares. Formed to carry on in Lancashire, Cheshire, and elsewhere the business of manufacturers of and agents for manufacturers of motor cars, &c., especially for Hispano-Suiza cars. First directors, V. Louis, L. P. Leitao and J. M. P. Leitao.

Manchester Automobiles, Ltd, 97, Whitworth Street, Manchester.—Capital £10,000, in £1 shares. First directors, J. L. Tattersall and D. A. Parkyn.

ROUNDABOUT NOTES.

IN connection with the troubles arising with the English trade, &c., from the war, we learn from the Humber Co. that the agent for their cars in Sofia has not only himself been ordered to the front, but his four Humber cars have been commandeered also.

MESSRS. H. M. HOBSON, LTD., 16, Pall Mall, S.W., inform us that they are now the sole concessionaires for Excelsior cars.

WE have been asked to make clear that while the petrol pressure pump described in the Accessory page of October 12th issue was made by Messrs. Benton and Stone, the other pump referred to as having been illustrated on November 4th last was actually the product of the Rotax Co.

MOTORISTS who have an H.F. portable vulcanizer purchased prior to 1907, or of an earlier pattern than the present model, are invited to communicate with the manufacturers; they will hear something that will interest them. Communications should be addressed to Messrs. Harvey Frost and Co., Ltd., at their West-End branch, 27, Charing Cross Road, W.C.

WRITING to the Avon Indiarubber Co., a Bristol owner says: "Having been using your tyres on my 16-20-h.p. Star car for over two and a half years, it gives me great pleasure in saying that they have given me the greatest satisfaction. As an instance of their durability, I am returning a cover which has done the remarkable mileage of 19,000. I may add that I have another Avon cover on my car at the present time which has done 11,000 miles, which proves that your tyres are remarkable for their wearing qualities."

OWNERS of Martini cars will be interested to know that Messrs. C. Bertrand, of 103, Long Acre, London, are now the sole concessionaires for Great Britain for these cars. They will, therefore, be in a position to supply all spare parts and replacements.

WRITING from Nagpur, Central Provinces, India, to the Stewart Precision Carburettor Co., Mr. A. E. Joyce says that since fitting a 1½-in. Stewart Precision carburettor to a 15-h.p. 1909 car, it is about ten miles an hour faster, while the consumption has been very considerably improved. At the time of writing the temperature was 118° F. in the shade and the carburettor got so hot in the middle of the day that it could hardly be touched.

MR. H. BELCHER, who has been connected with Messrs. Humber, Ltd., for twenty-five years, has just resigned his position as sales manager, and is joining Messrs. A. R. Atkey and Co., the well known agents, of Nottingham, Derby, and Johannesburg. Messrs. Humber have just shut down their depôt in Nottingham and transferred the agency to Messrs. Atkey and Co., so that Mr. Belcher's connection with the firm will not be entirely discontinued.

AT the Albion Hotel, Piccadilly, Manchester, on Thursday next, the 31st inst., Mr. S. Chesters-Thompson will put up for auction the British and foreign patent rights in the spring wheel invented by Mr. Lewis Johnstone. Unfortunately the inventor died before he had been able to put his invention upon a commercial basis, but some sample wheels have run for between 5,000 and 6,000 miles, and a very favourable report has been given by Mr. T. Roland Wollaston, of Manchester. Full particulars can be obtained from Mellor and Co., 57, Princess Street, Manchester.

MR. S. F. CODY used Vacuum Mobiloil A to lubricate the 100-h.p. Green engine on the Cody biplane with which he won the British Michelin Cup No. 2 the other day.

WRITING from Horsham, Victoria, Messrs. Young Bros., stock and land agents, who have six 12-h.p. Talbots, five 15-h.p. and one 25-h.p., say that their first 15-h.p. has been in constant commission ever since it was bought in March, 1908, with only one overhaul and has run somewhere about 120,000 miles. The car has had to run on the roughest of country roads in all sorts of weather, as well as across bush, paddocks, and station runs, but it, as well as the other Talbots, have always given complete satisfaction, with never a sign of trouble.

MANY thanks to Messrs. Herbert Terry and Sons, the spring specialists, Redditch, for a little pocket screwdriver, shown in accompanying sketch. A small screwdriver is a tool which one can never find when it is wanted, and this latest novelty of Messrs. Terry will come to the rescue very often. It is got up in either plated or bronze finish, and fits in a little leather case which can easily be carried in a corner of the waistcoat pocket.



OWING to increase of business, Messrs. Bramco, Ltd., have now removed into larger and more commodious premises, No. 50-60, St. Nicholas Street and No. 1, Ellys Road (corner premises), Coventry. Their offices are at No. 1, Ellys Road.

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FROM Messrs. S. Wolf & Co., 115, Southwark Street, London, S.E., we have received a booklet entitled "Practical Hints for the Fitting and Care of the U.H. Arc Ignition Magneto." The firm will be pleased to send a copy to any of our readers who care to apply for it.

THE winning F.A.B. car in the Coupe de Liedekerke competition, which was run off recently at Ostende, was fitted with Riley wheels; whilst another recent win by Riley-equipped cars was the Grand Prix of Belgium, in which the Hermes team was successful, all cars having Riley detachables. We now learn that all the four Schneider cars which ran in the Grand Prix de France race were fitted with Riley wheels. These cars finished respectively, second, fourth, sixth and fifteenth, and Mr. Schneider won the cup for the regularity of his cars, his team of four Schneiders being the only team to complete the whole race.

ONE or two of the Vauxhall agents have been extremely successful during the past season, notably Mr. R. Wilkie, who secured two awards in the Manchester A.C. Reliability Trial, the Oakamoor Hill-Climb, and all four events in the Lancashire A.C. Speed Trial.

"A WOLSELEY IN THE MAKING" is the title of a charming little booklet just to hand from the Wolseley Tool and Motor Car Co., Ltd. It is a brightly-written description in non-technical language, illustrated by a large number of photographs, of the actual operations in the Wolseley motor car works, commencing with the raw material and ending with the finished car. Any motorist or prospective motorist may obtain a copy by writing to the firm at Adderley Park, Birmingham, mentioning the AUTO.

WHILE Argylls, Ltd. are best known as manufacturers of touring motor cars, a big business in Argyll vans and lorries is rapidly developing. One and two ton Argyll lorries are penetrating to all parts of the world, and a number are being sent to Russia, where the business is only just beginning.

MESSRS. RILEY (COVENTRY) LTD., inform us that their detachable wire wheels have been fitted to no less than 180 different makes of cars of British, American, Italian, Belgian, Spanish, Russian, Swiss, Dutch, German, French and Austrian makes.

MR. C. M. BICK, who is well known to motorists "down under" as the representative of Continental Motor Tyres in Melbourne, is taking a few months' holiday. He is visiting England, and will go on to the Continent and then to America. Before leaving Australia he was presented with a gold watch by the Automobile Club of Victoria.

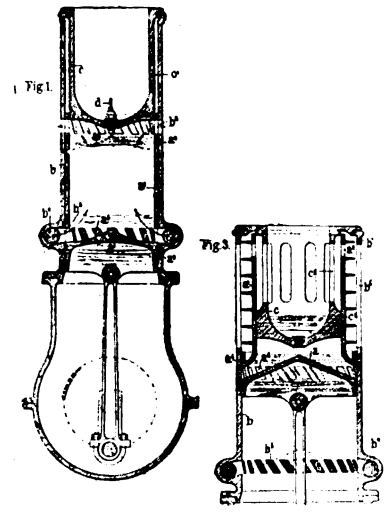
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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

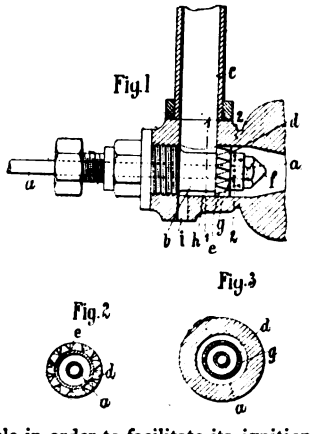
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

2,576. January 31st, 1912. Date claimed under International Convention, January 31st, 1911. Improvements in Two-Stroke Cycle Explosion Engines. J. A. Hardy, 6, Avenue Jules Janin, Paris.—This invention relates to two-stroke cycle explosion engines of the type in which the distribution is effected by the piston, the latter being extended as a sleeve to cover and uncover two sets of ports arranged at the two ends of the cylinder in such a way that the admission of fresh gases takes place at one end of the cylinder and the exhaust at the other end. The piston, *a*,



of the engine is extended upwards in the form of a cylindrical sleeve, a^1, and has rings of ports, a^2, for the exhaust, and a^3 for the admission, corresponding to ports, b^2 and b^3, formed in the wall, *b*, of the cylinder, the ports, b^2, lead to the atmosphere, the ports, b^3, communicate with a channel, b^4, by which the mixture is received from the closed crank-case acting as a pump-body. The cylinder, *b*, is surmounted by a head or cover, *c*, in which the sleeve extension, a^1, of the piston, *a*, fits; grooves, c^1, allow the escape of oil during the upward stroke of the piston. Packing rings, a^4, are arranged on the piston, *a*, and the sleeve a^1. Ignition is effected by a spark-plug, *d*. The head of the piston, *a*, has a conical shape. The stationary end of the cylinder is given the same shape. In the modification shown in Fig. 3, the sleeve, a^1, of the piston is bored to receive the head, *c*, which is provided with packing-rings, c^2. The sleeve, a^1, has gills or ribs upon its outer surface for cooling by the circulation of air through slots, b^5 and and c^3, formed in the wall of the upper part of the cylinder, b^1, and in the wall of the head, *c*.—October 2nd, 1912.

4,352. February 21st, 1912. Date claimed under International Convention, February 22nd, 1911. Improvements in Liquid Fuel-Sprayers for Internal-Combustion Engines. Carl Wedekind, 2, Place Mozart, Nice.—In all internal-combustion engines it is important that the liquid fuel shall be sprayed or divided as finely as



possible in order to facilitate its ignition and combustion. This invention has for its object an improved sprayer of the nozzle type for spraying liquid fuels by means of compressed air. Fig. 1 is a longitudinal section, Fig. 2 is a cross-section on the line, 1—1, of Fig. 1, and Fig. 3 is a section on the line, 2—2, of Fig. 1. The liquid fuel is supplied through a pipe, *a*, to the sprayer-nozzle, *b*, at the entrance to the combustion-chamber. Compressed air is supplied through a pipe, *c*. The compressed air passes first into an annular chamber, *h*, the sectional area of which is such that it causes no loss of pressure. The air has to traverse axially a disc, *d*, fixed on the sprayer-nozzle, *b*. This disc has radial slots, *e*, which taper in the direction of the flow of the air, and have their narrowest cross-section area at the front face of the disc. The compressed air is caused by this formation of the slots to traverse the disc, *d*, with a materially increased velocity, and to leave the disc with a high terminal velocity. The liquid fuel passes first into the capped end, *f*, of the nozzle and thence, reversing its direction of motion, into radial outlets, *g*. These outlets are directly in front of the slots, *e*, and in alignment therewith, so that the fuel impinges directly in front of the slots, *e*, on the compressed air, which at this place possesses a high velocity. The fuel, in thus traversing a long path in the nozzle before it reaches the outlets, *g*, takes up a great deal of heat from the hot walls of the nozzle, which are heated owing to the nozzle being in the vicinity of the combustion-chamber. An opening, *i*, is provided in chamber, *h*, for a pressure-gauge. —October 2nd, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published October 24th, 1912.

19,193. R. M. RIDDELL. Revolving maps.
19,333. G. P. P. GOTTMANN. Carburettors.
21,275. J. V. PUGH. Detachable wheels.
21,807. OESTERR. DAIMLER MOTOREN A.-G. Road trains.
21,810. L. S. DE RICHELLE. Sleeve-valve I.C.m.
22,710. A. E. MACDONALD AND S. F. EDGE. Bodies for cars.
22,722. M. LING-BEVINGTON. Two-stroke cycle I.C.m.
23,133. L. E. LEMPÉRIÈRE. Valveless I.C. engines.
24,469. J. T. SCARBOROUGH. Friction clutches and brakes.
26,898. J. R. CHURCHILL. Springing of cars.
27,292. J. B. TAUNTON. Chassis.
28,109. G. A. MORTIER AND C. MACBETH. Tyre tube covers and protectors.

Applied for in 1912.

Published October 24th, 1912.

234. L. W. HOLMES. Reinforced inner tubes.
1,095. R. H. AND V. HOPKINSON. Interchangeable car bodies.
2,938. C. S. BEACH. Valves.
4,389. J. VAN AERSCHOT. Mud-guards.
4,562. S. P. NEUHAUSEN. Flexible steel spring wheel.
4,598. R. BOSCH. Spring coupling.
5,959. LEVAHN MOTOR CO. Duplex piston engines.
9,457. A. FIELDING. Carburettors.
9,711. A. M. DE PALACIO, COMTE DE B. DE DUERO AND S. RUBIO. Resilient wheels.
11,693. E. AIMOND. Elastic wheel.
12,647. H. CLARKE. Exhaust silencers.
14,116. J. G. SCRIVENER Rotary engine.
15,231. C. BOUCHEZ AND J. FRESCHETTI. Resilient wheels.
16,811. A. VIÉTOR. Spring wheels.
20,993. J. V. PUGH. Detachable wheels.

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The AUTO -MOTOR JOURNAL.

The Motorist's Journal and Directory.

No. 617. (No. 44, Vol. XVII.) | NOVEMBER 2, 1912. | Weekly, Price 3d. Post Free, 3½d.



MOTORISTS AT HENDON AERODROME FOR THE FLYING.—A typical scene in the enclosure on Saturday afternoons.

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The AUTO MOTOR JOURNAL (YELLOW COVER)

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44, ST. MARTIN'S LANE, LONDON, W.C.
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Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
	s. d.	s. d.		s. d.	s. d.
United Kingdom	3 6	7 0	United Kingdom	7 0	14 0
Abroad	6 6	13 0	Abroad	10 0	20 0

Remittances.

Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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For the "Auto." Directory to Makers of Cars and Accessories see pages xxxiii to xxxvii.

Passing Events

The Great West Road Scheme.

According to a *communique* issued by the Roads Improvement Association, an improved scheme has been evolved for the Brentford section of the Road Board's scheme for a western outlet for London, one which it is hoped by the R.I.A. will settle the chief differences now existing between the various authorities interested in the proposed new road. Briefly, the improved scheme provides that the new road, when approaching Brentford, shall not swerve upwards at the Brentford waterworks to pass in a north-westerly direction to the Bath Road, but shall start at Chiswick High Road at the foot of Gunnersbury Lane. It will then pass straight across the railway, avoiding the tangle of tramway crossings at Kew Bridge, and then run parallel with the railway until it joins the existing road west of Brentford High Street and then travels due west across country to the Bath Road near Hounslow. The course of the road as now proposed and as it originally figured in the scheme of the Road Board is sufficiently well indicated by the sketch-plan which we reproduce on another page of this issue of the AUTO.

According to the promoters of the new scheme, Brentford now complains that if the Road Board's proposal is adopted it will be entirely cut off, with a consequent loss of trade to its High Street, but it is claimed that the new scheme deals with this objection through the branch road which the plan shows issuing into the present highway opposite the road from Isleworth to Twickenham. However that may be, it is to be hoped that some decision will be quickly reached by the authorities concerned. So much has been said and written with regard to the dangerous High Street of Brentford, that we almost feel as though an apology were needed for mentioning it again, but needs must when the matter is of urgent importance. This new scheme has, we understand, received the approval of the Road Board and of the Heston District Council, the others concerned being the Middlesex County Council and the Brentford Authority. Both of these bodies seem reluctant to entertain a scheme of improvement which does not take into account a widening of the notorious thoroughfare to which reference has been made. So far as their opposition is concerned, that could be overcome by means of Parliamentary powers, but the latter are expensive and difficult to obtain when the strenuous opposition of a local authority has to be fought. For our own part, we do not care very much what form the suggested improvement takes so long as something is done to minimise the undoubted dangers of the principal western road in and out of London. Whether it be the original Road Board scheme, or the new one of the R.I.A., or an effective widening of Brentford High Street does not, to our way of thinking, matter very much except that the new idea appeals to us as furnishing a completely new road which would have the effect of creating a practically fresh line of traffic and thus serving the double purpose of affording a wide, clear route for through traffic and confining the more local traffic to the old road. But whatever form it may take, it is urgent and expedient that a decision should be arrived at without delay.

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The London Traffic Question.

There is no gainsaying the fact that the agitation against the dangers of motor traffic in London is attaining to formidable dimensions, and that something will have to be done by those in authority to put things on a footing more acceptable to the general public. While we do not recede from the opinion that we have, times without number, expressed that the comparative dangers are much exaggerated by those who fill the correspondence columns of the dailies, it would be foolish

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to ignore the patent fact that the public is becoming seriously alarmed, and that it is up to those who are qualified to speak from the motorist's point of view to come forward with their own ideas of how the danger is to be met. It is scarcely possible nowadays to pick up a newspaper—or even a magazine, for that matter—in which the subject is not treated at considerable length, and various suggestions, some good and some utterly futile and impracticable, made for the betterment of things.

The latest phase of the movement is one for the restriction of the number of motor omnibuses to be licensed to ply for hire within the radius of inner London. It is said that the Home Secretary, in agreement with the view of the omnibus companies, proposes to restrict the number to three thousand. To that there is not the slightest objection in the world, except from the point of view that it appears to us to be commencing at the wrong end. No doubt the proposed restriction will meet the wishes and desires of the existing omnibus companies, for it is obvious that once they have their three thousand vehicles in commission the door is absolutely closed to any further competition by new concerns, but it should not be granted without some powers of the authorities over the fares to be charged as it simply creates a virtual monopoly for the first comers. Although with that aspect of the case we do not propose to seriously quarrel, for there will still remain enough of the competitive element to ensure that London shall not fall into the lap of a traffic trust. But the primary object of such action as that which it is said is to be taken is necessarily, on the face of things, to make the streets of London safer for the public. That, we say, it will not do in the slightest appreciable degree. To begin with, any excess in the number of motor omnibuses over the three thousand at which the maximum is put would be practically negligable in the total volume of traffic, and, therefore, what we may term the added percentage of public safety would be equally to be ignored. Such a course is merely tinkering with the problem, and while it may act to some small extent as a sedative to the public mind, so far as any useful object is concerned it is about as useful as attempting to kill an elephant with a tack-hammer.

What is most urgently required is, not a decimal percentage reduction in the number of vehicles using the streets, but proper regulation of the whole traffic volume, and the sooner those in authority can be brought to see it from that point of view the better it will be for London. Even now our responsible officials of the Home Office and the Local Government Board do not seem to realise that traffic has undergone an utter and entire change. To judge from their attitude it might be thought that the only problem was that of the motor 'bus, and that that of the traffic *as a whole* did not exist. Nothing but a drastic reorganisation of traffic regulations will suffice, but to all the recommendations of those who are qualified to speak as experts and who advocate the immediate constitution of a Central Traffic Board are ignored or put off until a time which looks to approximate to the Greek kalends.

"One-Way" Streets. The Traffic Committee of the Westminster City Council has recommended that, subject to the approval of the police authorities, notices should be affixed in certain streets requesting drivers of vehicles to proceed along them in one direction only. This certainly seems to be a move in the direction of relieving congestion, and we commend it as such, but here again is a sample of the tinkering which makes chaos only worse confounded. Let us hasten to say that we are not by any means criticising the Westminster authorities, who are doing their best with limited powers to put the traffic conditions on a better footing. We are taking this example of what we have called tinkering with the traffic simply to call attention to the simply silly conditions which obtain with regard to traffic regulation in the metropolitan area. The City Council arrives at a decision that is excellent in its way, but before it can even exhibit notices which are simply in the form of a request, it has to submit its ideas to the police. The latter having approved them—if they should see it in that way—up go the notices, but has anyone the power to enforce their provisions? We doubt if even the Commissioner of Police can permanently close a road to legitimate traffic. But if there existed a Central Traffic Board, with power to control the whole traffic in the way it should be controlled, then the case would be entirely different, and order might in time be evolved from the existing chaos.

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The Motor 'Bus "Invasion." Under this heading the *Manchester Guardian* publishes some rather interesting extracts from interviews with people more or less prominently connected with Lancashire tramway enterprises. Here is one :—

"There is little civic spirit in London," one tramway manager said yesterday, "or the municipal authorities would not allow such fierce competition with their tramways in the outlying districts. Of course trams have never been allowed in the centre of London, and that is how the 'bus people have managed to acquire such an advantage at the start."

Here is another sample :—

"If motor 'buses are going to run over certain routes in Lancashire at definite times," another Corporation manager said, "they will have to be licensed by the authorities of the districts through which they run. I think they would be refused licences in any large centre on the ground not of competition with the property of the ratepayers, but because the tramways provide adequate transit facilities and that the streets are already congested. My own solution of the highway difficulty is special roads for motor-driven vehicles, as they have on the Continent, and we shall be forced to have them, sooner or later."

The *naïveté* of the first part of this extract is delightful. Not because they compete with the municipally-owned tramways must the motor omnibuses be legislated against, but because the former provide all the facilities needed! What specious equivocators are we humans! It is though as if the municipality should open a grocery store and forbid another in the town on the ground that the first could supply all the groceries needed by the community—and if it sanded the sugar, well, what of it? That is precisely the position now, for as progress has

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been made in locomotion the tramways are really providing us with the sanded sugar, which we must take because it would be dead wrong to allow another shop in the town which might sell better and fresher goods than the municipal undertaking.

The concluding remark about the Continental motor roads is another illustrating instance of the ignorance of the average municipal authority. Where do these special roads exist? We thought we knew something about Continental traffic conditions, but we confess to having missed this most important development. Why there is not even a Brooklands track on the Continent. The same authority gives it that the trackless trolley is the locomotion of the future. How they do hang on to their antiquated notions!

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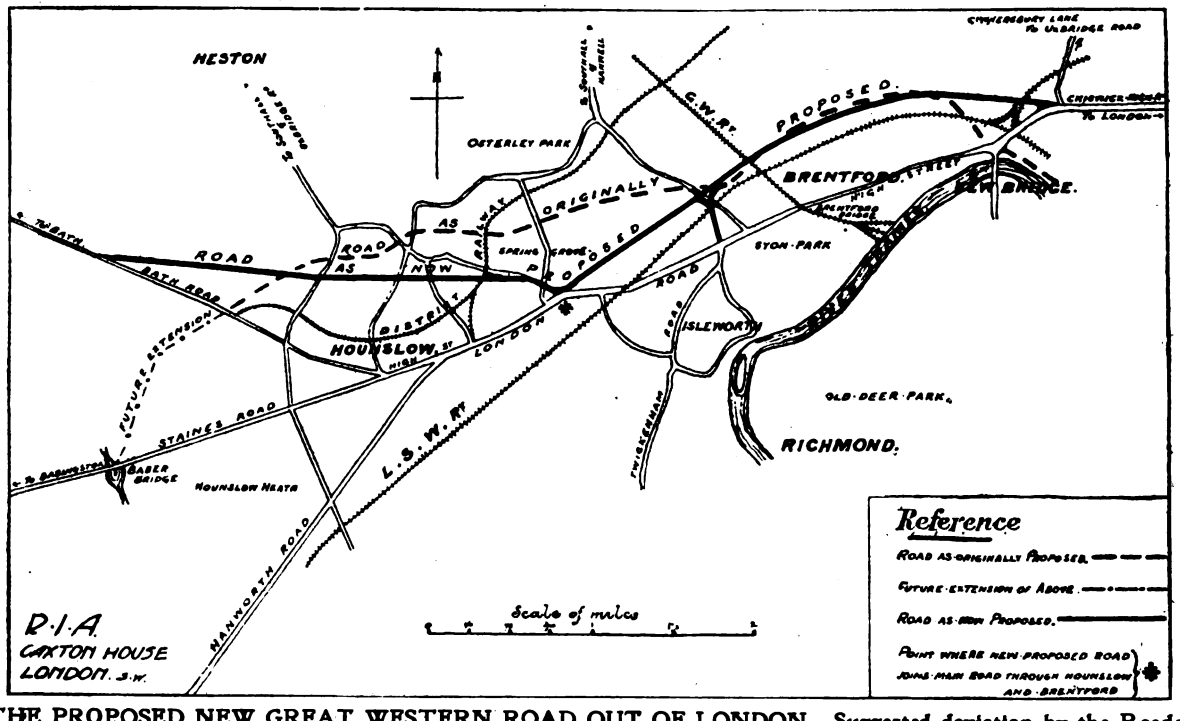
A Case of Differential Treatment.

We have before us a newspaper report of a case heard at the Chester Assizes recently, in which a man was indicted for manslaughter, the circumstances being that the accused was in charge of a horse and cart which collided with a motor car at a cross-road, with the result that the owner of the car met his death. It was alleged that the horse driver was in such a state of intoxication that he was quite unfit to be in charge of the vehicle. In the result the jury found him guilty, with a strong recommendation to mercy, and he was bound over in his own recognisances of £10 to abstain from intoxicating liquor for twelve months and to come up for judgment when called upon. It is, perhaps, a pity that we have not available a fuller report of the case, which might show that there were alleviating circumstances which led the learned judge to pass so light a sentence—one that practically amounts to almost unconditional release—but on the face of it we cannot help thinking that there is in very truth one law for the motorist and another for the horse driver. Is it at all conceivable that had the case been one in which a motorist, under the influence of drink, had contributed to the death of another person, he would have got off thus lightly? Scarcely, when we remember that a simple infraction of the speed-limit, with no allegation of danger to anyone, is never let off as lightly as this gentleman at Chester who was fortunate enough only to be driving a horse.

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"The Peril of the Streets."

Under this or similar headings the daily Press continues to devote a great deal of space to accounts of motor accidents and the discussion of ways and means of lessening their number. *En passant*, it may be remarked that no reference is ever made to the still quite respectable total of accidents caused by the rapidly disappearing horsed vehicle, nor do we see it suggested that the *whole* problem of the streets requires dealing with and not only a part. One of our contemporaries—the *Daily Graphic*—comes along with the rather startling suggestion that in every case of a motor accident involving death or serious injury to one of the public the driver of the car should automatically go to gaol for a considerable period, unless it can be shown by him that there was no human possibility of avoiding the accident. This seems to us to be asking a lot—it really means that the whole basis of the British criminal law should be altered to meet one particular class of case. It is one of the fundamental maxims of that law that it is upon the prosecution to prove an accused person guilty and not, *prima facie*, for the latter to demonstrate his innocence of the offence alleged against him. Therefore, if our contemporary's



THE PROPOSED NEW GREAT WESTERN ROAD OUT OF LONDON.—Suggested deviation by the Roads Improvement Association.

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wishes were to be met in this matter—fortunately there is not the remotest chance of anything of the kind happening—we should indeed have started upon a career of differential law-making. At the same time, this sort of thing will bear watching, for we see that a similar idea is put forward in an article appearing in the current month's issue of *Pearson's Magazine*, which certainly appears to indicate that it is one that is attractive to some who have a claim to have the ear of the public. Such doctrines as these suggestions convey—they practically advocate the rough-and-ready methods of the Wild West, where it is alleged they hang the prisoner first and try him afterwards—is certainly not in accordance with the general constitutional usage of this country, and we confess we are a little astonished to find that it has champions among the most sober-minded of our publicists. By all means let us have discussion if in that way we can urge on legislation of a proper kind which will help to make our streets safer, but the question is a far too serious one to be approached and handled in anything like a partisan spirit. The subject really resolves itself into the problem we have set forth in our columns more than once, which is that town traffic has become absolutely revolutionised, and that we shall have to start *de novo* on the question of its control, not in parts, but as a whole. It is not the slightest use suggesting drastic penalties for one class while another is left free to wander about the streets practically untrammelled and uncontrolled. The point that does not appear to be fully appreciated by those who airily suggest something with boiling oil in it for the motorist is the one that every class of traffic has a duty to itself and the other, and that all the onus cannot logically or practically be laid upon the shoulders of one alone.

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THE AUTO. EXCLUSIVE PHOTOGRAPHS.

Judge Vindicated.

"By the way, as I noted at the time, there was a great deal of difference of opinion expressed as to the judge's decision in the last race of the season at Brooklands—the Sprint—when four or five cars finished all in a lump. Now, strangely enough, proof of the judge's correctness is to hand in quite an unexpected fashion. The ubiquitous photographer of the AUTO., who is always much in evidence at all motor meetings, took a happy snap at the finish, which, though a trifle blurred, clearly shows No. 9 crossing the winning line itself an actual length ahead of No. 10. Not only does this vindicate the judge, and make his self-constituted critics look a trifle foolish, but it shows at what a terrific speed the cars flash across the line when all out at well over a hundred miles an hour."—*Gerald Biss in the Standard.*

"The 'Yellow Cover' has solved the dispute between the Scribes and the Pharisees—I beg their pardons, the executive—at the last meeting, when the former almost with one accord disputed the judge's decision in the last race—the Sprint—in which the first four or five finished all in a lump. It has been conclusively proved by 'Professor Lightning,' using not the methods of Sherlock Holmes and Co. but the simpler and ever-truthful camera. His photo may be a trifle blurred, but it is amply clear enough to show that No. 9 was a clear length ahead of No. 10 on the finishing line, vindicating the judge and showing at what a pace the cars are travelling as they cross the line. In future the Press will be more polite to the judge, who, after all, is a very necessary chap at a race-meeting. The bookies, too, can now look pleasant in the memory of having paid out over No. 9. Also, No. 10's heart-burning is assuaged. What a lot of good work 'Professor Lightning' and the AUTO. have done at one click of the camera!"—*The Winning Post.*



THE WAR IN THE BALKANS.—A quaint link—the only one—between Cettinge and Cattaro, being a 36-40-h.p. Laurin-Clement which is travelling over the distance of 17 miles daily, occupying about three hours each way. This photograph was secured only late on Saturday last, the vehicle being used for helping with the care and treatment of the wounded.

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OLYMPIA MOTOR SHOW 1912

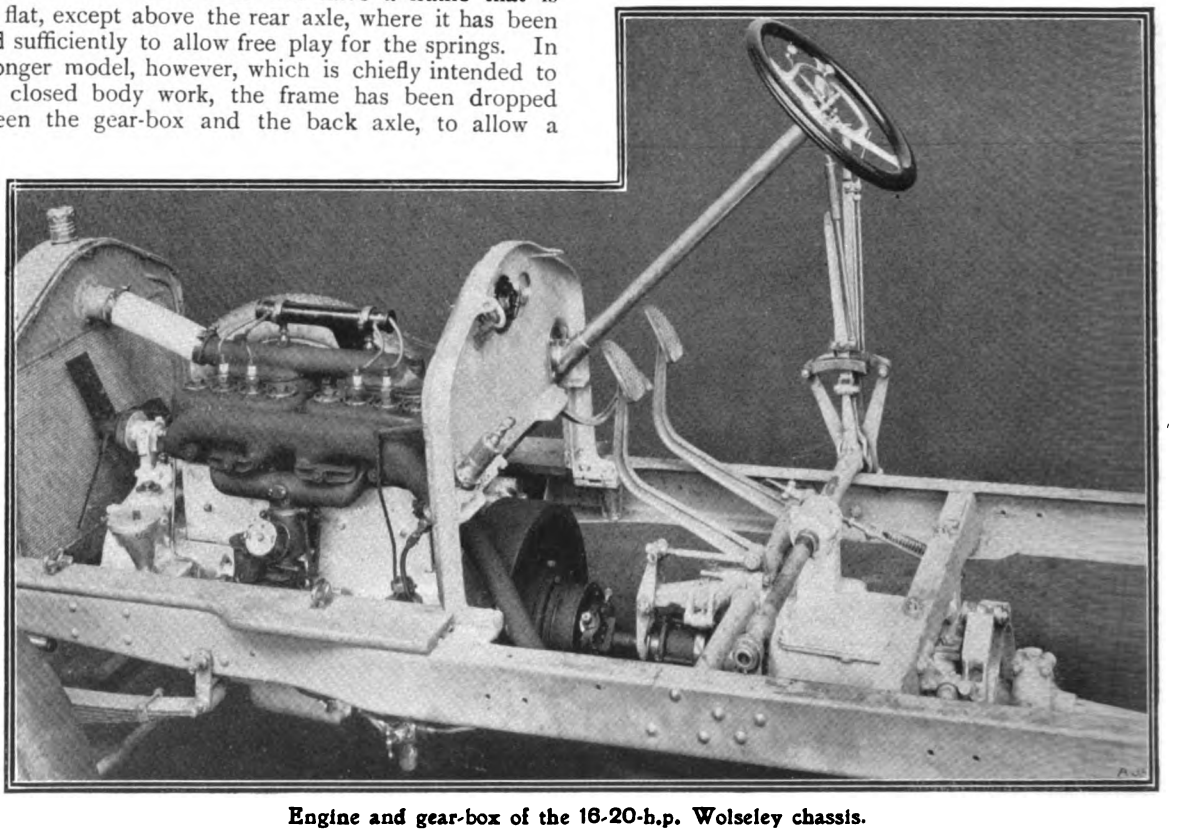


WOLSELEY CARS.

FOR the year 1913, the programme of the Wolseley Tool and Motor Car Co., Ltd., of Birmingham has been limited to three models, viz. :—

16–20-h.p., 4 cyls., $3\frac{9}{16}$ in. bore by $4\frac{3}{4}$ in. stroke.
24–30-h.p., 6 cyls., $3\frac{9}{16}$ in. bore by $5\frac{1}{2}$ in. stroke.
50 h.p., 6 cyls., $4\frac{1}{2}$ in. bore by $5\frac{3}{4}$ in. stroke.

As in previous years, quality is the chief characteristic of all the products of this Company, which has made considerable additions to its plant of machine tools, so as to be able to turn out no less than 4,000 cars of the 16–20-h.p. model alone. This and the 24–30-h.p. are the two models for which the Company expect the largest demand and both are made in two lengths of chassis. The short chassis will have a frame that is quite flat, except above the rear axle, where it has been raised sufficiently to allow free play for the springs. In the longer model, however, which is chiefly intended to carry closed body work, the frame has been dropped between the gear-box and the back axle, to allow a specially low entrance. The main features of the design are common to both types, so that with the exception of dimensions and some few minor details a description of the 16–20-h.p. model may, for the time being, be taken to apply to the larger type also.



Engine and gear-box of the 16-20-h.p. Wolseley chassis.

While, on the whole, the design follows fairly closely that of last year's model, the engine incorporates a number of features that are entirely new. The carburettor, for instance, on the four-cylinder model is a modified S.U. type, specially adapted to the requirements of this particular engine, while in the six-cylinder chassis, the Wolseley two-jet-carburettor has been retained. Considerable improvement has been effected in the lubrication of the engine, which is a combination of pump feed and splash system. Spoons are attached to the big-end bearings, which dip into troughs that are kept replenished by a gear-driven oil pump. The difficulty of smoking has been overcome in a most ingenious manner by altering the shape of the piston. The cam-shaft and the magneto are driven by silent chains.

The feature, however, that will attract most attention to Wolseley cars at the forthcoming Olympia Show is a self-starter of the compressed air type, which has been designed and is entirely manufactured at the Wolseley works. It will be a standard fitting on the 24–30-h.p. chassis, while the 16–20-h.p. is designed with a view to having it fitted as an extra. The self-starter consists in the main of a two-cylinder air pump driven off the counter-shaft in the gear-box; it fills a steel cylinder up to a pressure of slightly over 300 lbs. and when this pressure is reached the pump is thrown out of gear by a lever on the dashboard. From the air tank, the compressed air reaches the cylinder *via* a distributor valve on the forward end of the cam-shaft. We intend

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dealing with this highly interesting self-starter in a special article soon after the Olympia Show, and will, therefore, content ourselves, on this occasion, with saying that it strikes us as a remarkably well thought out device in which special attention has been devoted to the valves, so as to eliminate leakage as far as possible. A bypass is fitted to the main valve of the self-starter for the purpose of attaching a rubber tube for inflating the tyres or raising a pneumatic jack.

As in previous years, the gear-box, which is suspended on three points will contain four speeds forward and a reverse, while the feature of the whole of the transmission system in both models, is the very liberal number of ball and roller bearings as well as thrust washers, all of which are of very ample dimensions. On the four-cylinder chassis the final drive is by worm gear underneath the axle, while in the six-cylinder model bevel drive has been employed. Special attention has been given to the design of the bevel and its bearings so that silence under all conditions is assured. The driving bevel is provided with a steady bearing on the inside in addition to two large ball journals and a double ball thrust washer on the forward end. A spur wheel differential is used and the axle shafts are spiggotted inside the differential case.

In view of the fact that many manufacturers are reviving the under-slung type of rear springs, it is interesting to notice that in the 16–20-h.p. Wolseley this type of suspension has been standard practice for some considerable time and it will now be extended to the 24–30-h.p. model as well. All four road wheels are fitted with adjustable Timken roller bearings. Rudge-Whitworth detachable wire wheels are standardised for all Wolseley models as during the last season. A slight modification is to be noted in the steering gear, which is now designed in such a manner that the rake of the column can be varied without difficulty. A great improvement has also been effected in the design of the steering joints, especially those of the cross tube, which obviates the fitting of unsightly leather covers, inasmuch as the joint is entirely self-contained and grease retaining. No water or grit can get inside and a large greaser is provided at the top.

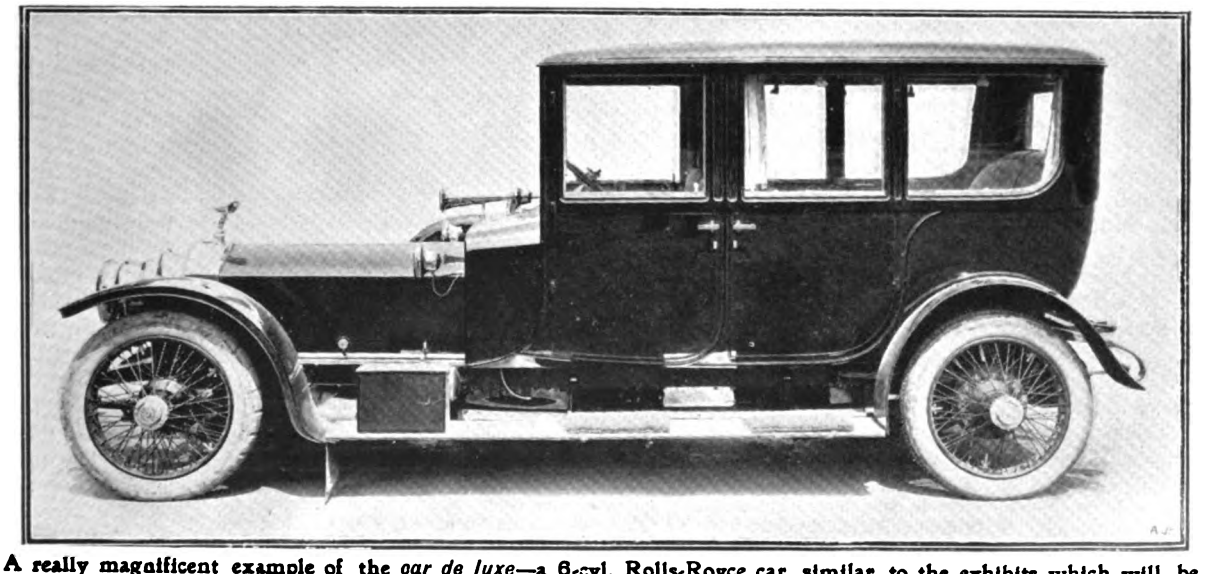
In the matter of coach work Wolseley cars show a number of improvements and refinements. The open bodies especially have been re-designed so as to allow more comfortable seating accommodation and more leg room. The folding wind screens have been standardised and are provided with self-contained patented joints, manufactured at the Company's own works, which is the best assurance that only first class materials enter into its construction. A new spare wheel carrier has also been patented by the Company, and will be fitted to their new models. It consists of an aluminium dummy hub mounted on a strong bracket which in turn is attached to the main frame in such a manner that it is held quite rigid while it carries the wheel in the customary manner. When it is desired to remove the wheel the whole of the bracket swings upwards and allows the spare wheel to be withdrawn from the well in the running board that serves as an additional support.

When we visited the Company's works the other day, there was one feature in particular that impressed us most favourably, viz, the total absence of surplus stock. All the old models have been sold a long time ago and the whole energy of the works is put into the manufacture of the new models which has been advanced a good deal during the past few weeks and will enable the Company to give early deliveries to their clients who order cars at Olympia.

ROLLS-ROYCE.

FOLLOWING their practice of last year, Messrs. Rolls-Royce will show nothing but complete cars at Olympia, in order to prevent *bona fide* buyers being inconvenienced by visitors whose main object is to study the machinery for their own purposes. They announce, however, the following technical modifications in their chassis design for the information of those who are curious on the matter :—

Chassis, &c.—1. More flexible rear-springs of the "inverted" or "cantilever" type so arranged as to reduce side sway to a minimum.
2. Special design by which extra ground clearance is obtained.
3. More perfect ventilation of engine and body.



A really magnificent example of the *car de luxe*—a 6-cyl. Rolls-Royce car, similar to the exhibits which will be on view at Olympia.

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Engine, &c.—1. New design of two-to-one gear on front of engine, the construction of which is covered by recent patents.

2. A new patent spark distributor having platinum points.

3. The magneto is the latest Bosch totally enclosed type.

Transmission.—1. The radius-rods, torque-rod, and propeller-shaft instead of being different members have been combined by making a large spherically-ended torque and radius-rod of tubular section enclosing the propeller-shaft.

The sphere at the front end encloses concentrically a large universal joint of the ring type, the stationary sphere is oil retaining and dust excluding.

The whole of the tubes comprising the torque-tube and rear axle are made from large solid steel forgings.

2. The adjustment (exterior) of road wheel brakes is now done by means of finger nuts, and can be carried out without using a spanner.

3. Provision is now made for driving a dynamo for electric lighting sets by means of a special pulley fixed at front end of gear-box.

4. A newly patented spring-drive type of coupling, with several novel features, replaces the old form of solid drive through universal joints between engine and gear-box.

5. The cone-clutch has been improved by the use of a special fabric lining on the cone in the place of the leather formerly used.

General—1. The arrangement of the side levers and the rear brake pull-rod has been modified somewhat so as to be more suitable for body work.

TALBOT CARS FOR 1913.

IT seems only yesterday that the Talbot works in Notting Hill were built, but when we visited them the other day a plaque on the wall of the engine room bore a date that reminded us that the factory has been going for just on ten years. How the time flies! and how the Talbot car has flown with it. The entrance hall of this extremely businesslike and progressive concern has a large show case that is literally bristling with trophies, and even the cups have to stand on a bed of medals. They have been won in races and in hill-climbs and in all manner of competitions and many truly remarkable achievements too do they represent. Among them a few have been amusing as well as remarkable, as, for instance, the occasion on which a Talbot car was officially returned as having run 93 miles on a gallon of petrol in a Colonial event not so very long ago. There was no fake about the measurements either, so we will leave our readers to guess how it was done, and those of them who already own Talbot cars can set it up before them as a standard that will keep them busy in the art of learning to drive *really* well for a long time to come.

It is a little difficult to know which end of the range to begin with when reviewing the Talbot cars, and in the midst of thinking about it we have a strong inclination to ignore the machines altogether and talk about the works, for there is an extraordinary fascination about places where motor cars are built when you know that those who are building them have their heart and soul in their work so thoroughly as they have at the Barlby Road factory. Motor car construction has long since passed out of the realm of fancy into the remoter province of hard engineering.

Experience tells. The Talbot engineers may do this or that differently to some other firms; they do not say that their's is necessarily the best way of doing it, but they do say that they know it will give satisfaction. To paraphrase the words of a once familiar comic song, "It isn't exactly what they do, it's the thorough way they do it." If we were pernickety on matters technical and were less appreciative of engineering than we are, we might seek to gain credit by picking out isolated points for criticism, but such criticism would not only be worth nothing but it would be extremely unfair. In order to give an example of how misleading that sort of thing can be, let us take two features of the Talbot car itself. Everyone knows what a lot of discussion there has been about torque-stays, and is aware of the marked importance that many firms attach to their presence as separate and distinct members on their cars. Now the Talbot chassis does not have a separate torque tube in the modern sense, for although its propeller shaft is enclosed by a tubular casing, the upper end of that casing rides on the propeller shaft itself, with a result that the torque is transmitted through the universal joint on the rear main bearing of the gear-box. Here is a system, which, purely as a system, we should criticise as offering excellent opportunities for the failure under *ordinary* construction, and so it would; but, the truth of the matter is that the Talbot people know as well as anyone else what the liabilities are, and they know rather better than most how to avoid them. They know, as the result of experience, that they can make their design do the work properly and so long as it does the work properly the user of Talbot cars has very little reason to complain. They know, moreover, that the stress has to be taken somewhere and that no system, however good in principle, can be a safeguard against weak design. They choose to go about this particular



One of the latest Clement-Talbot cars at the entrance to the factory in Barlby Road, Notting Hill, which has now been manufacturing these machines for nearly ten years. The name originated in the collaboration of the famous French engineer, Mons. Clement, with Lord Shrewsbury, who is also Earl of Talbot. The works were founded for the purpose of building M. Clement's very popular designs in England, but the French influence has long since departed, and for many years now the Talbot cars have been British in conception as well as in manufacture.

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problem in a manner that somewhat increases the difficulty of the solution, but as they know themselves to be well able to get there, this is of small consequence to anyone else, and, indeed, it rather adds credit to their workmanship than otherwise.

Now let us set against this little feature, in the same category, radius rods. Nowadays there is rather a tendency to abandon radius rods in favour of the combined torque tube and radius rod member, which, being independently supported at its upper end, is in a position to transmit the thrust of the road wheels to the frame as well as resist the reactionary twist on the rear axle-casing. The Talbot chassis does possess radius rods, and the reason why it has them is because the makers have found from experience that it pays to link up the ends of the back axle to the sides of the frame so as to prevent the axle being slewed out of truth when one wheel strikes an obstacle. They consider that it makes the car keep the road better at high speeds—and, on the whole, they know something about high speeds, both in miles per hour and in revolutions, in the Talbot works. So, you see, it is not a matter of merely taking up a design because it is easy to execute, or of hanging on to an old design because it is there; they have a very good reason for what they do in everything, which, happily for the industry, is also the governing principle in all the *best* firms.

The modern Talbot car is a splendid machine. The last 12-h.p. we had the pleasure of using was almost phenomenal in its ability to climb hills, and it had a Stewart-Talbot carburettor on it, that so suited its engine capacity on some grades as to make this little 80 by 120 mm. car drive just like a "thirty." Those who have not tried the 12-h.p. Talbot certainly have something to learn about small cars, and, one way and another, the factory has made a very good effort to keep the automobile world informed about the capacity of small engines generally. Progressive experiment is a costly business; only the rich firms can afford it, but the information that they obtain is not to be gained otherwise, and although expensive it is necessary.

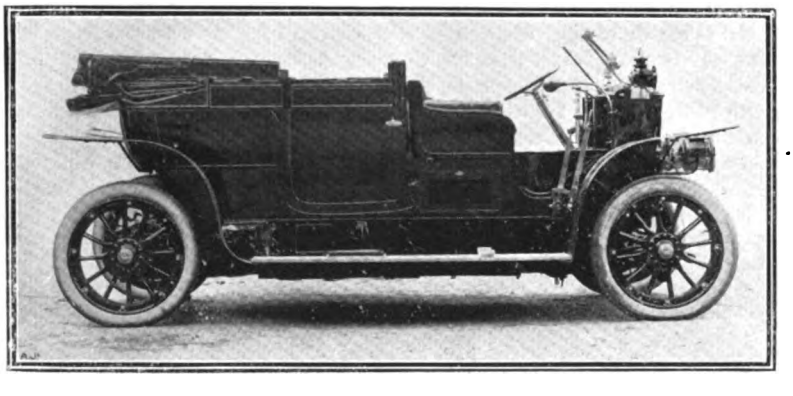
The "fifteen," so called, has a 90 by 140 4-cylinder engine, so the less said about "fifteen" the better. We are less familiar with this particular model than with the 6-cylinder "twenty," which has an extra pair of the 12-h.p. cylinders. Now the "twenty" is a most refined and altogether charming car to drive. As 6-cylinder engines go, it is a small six, but it develops about 45-h.p. on the brake, and it does not do so badly on the road either. It is a comfortable car, well sprung and very easy to drive. The largest model in the Talbot range is a 4-in. 4-cylinder car rated at 25-h.p., while developing something in the order of 55-h.p. on the brake.

All models are now designed on the lines of the six-cylinder "twenty," and certain improvements previously incorporated in that model only are now embodied in all types. A striking feature of the Talbot chassis is the strength of its frame, the outcome mainly of very severe trials that it has undergone in the Colonies. Not only have the side members quite a thick section, but the presence of an underframe and several channel cross members lends great rigidity to the composite whole.

Detachable wheels are fitted to all models, and on the 20-h.p. six-cylinder model de luxe Dunlop detachable wire wheels are fitted without extra charge. All models are provided with a spare wheel, and a particularly neat device has been provided for carrying them. The wheel sits in a groove that has been made in the running board, and it is held in place there by a light bracket projecting from the change speed lever quadrant and passing through the centre of the hub. As this bracket carries no weight, being merely for the purpose of steadying the wheel, it is quite small in size and is by no means unsightly if it happens that the spare wheel is not in place.

N.E.C. CARS FOR 1913.

By excellent good fortune, albeit no more than they deserve, the New Engine (Motor) Co. has secured a good stand in the ballot for space at Olympia this year. For five years this firm has been more or less under the shadow of the gallery, and people can say what they like about the merit of a car bringing its own reward, but the fact remains that for pure business so far as the Olympia Show is concerned, a really good position on the central gangway is quite a distinct point from the view of publicity. More than one firm, in fact, has been made through no more than this trump card in fortune, when its cars as such have been neither better nor worse than they were before.



And the N.E.C. certainly deserves to be looked into by the seriously purchasing public, for not only is the chassis one of the most interesting on the market, bearing as it does the imprint of really original thought, but the object that it seeks to attain in the form of a finished luxury carriage has an appeal that is altogether non-technical to the buyer of cars. With no bonnet and with its machinery low down and centrally situated in the frame, it is a complete departure from the stereotyped design, but the object with which they are placed there, namely, to provide the whole of the wheel-base for carriage accommodation so that the owner may have a very wide entrance to a comfortable body in which he sits well forward of the back axle, although occupying the rearmost seat in the car, is the matter that concerns the car owner of to-day far more directly than do any peculiarities of the chassis construction.

It is, however, of some importance that the owner should at least appreciate what he is buying in the way of machinery, and to know, for instance, of the N.E.C. that it has a balanced four-cylinder horizontal

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engine and a four-speed gear-box of quite unusually compact design. The accessibility is good notwithstanding the apparent lack of exposure of the parts ordinarily exhibited to view under an open bonnet, and there are some open minor features on N.E.C. cars that are not commonly to be found elsewhere. The makers were one of the first, for instance, to adopt the dashboard petrol tank, which affords a fuel gauge constantly in sight, and they are still the only constructors who provide a starting handle on the dashboard, which, being geared down so that the driver can easily operate it with his left hand, overcomes many of the objections of the starting handle in front, and has a simple directness of operation that may doubtless give it preference with some people over the automatic devices that are making a strenuous attempt to become popular just now.

A little point that has always seemed to us of great interest, and we wonder that it has not been copied, is the tilted steering wheel, which facilitates access to the driver's seat from the driver's side. N.E.C. motor carriages are not commonly driven by their owners, the design being essentially carried out from the point of view of the requirements of the class that suburbia calls "carriage-folk" rather than those whom the police keep their eye on as "motorists," and to this extent, the tilting wheel on the N.E.C. is perhaps less a matter of moment than it might be on other cars of more normal pattern. The reason why it is so desirable to have access to the driver's seat from the driver's side is because it is so very inconvenient to pass in front of the passenger in the seat on the left when it is necessary for the driver to leave the car, but, the occupant of the spare front seat on the N.E.C. is more likely to be a footman than anyone else. The tilting wheel is a little point in design, all the same, and is indicative of the care bestowed on many other details, such as the water-cooled foot-brake and the readily accessible oil filter, neither of which are so commonplace as to be unworthy of notice.

Then there is the suspension, but this is rather a category by itself than a detail of any other section, for it is a particularly comfortable carriage that the N.E.C. aims at making its appeal to the public that can afford these things. The springs are soft to a degree that needs to be tried to be appreciated, and the rear wheels being behind the coachwork transmit so little shock to the occupants as to make even the roughest road quite comfortable. The Kent cabriolet, which is a good example of the latest N.E.C. design and is a distinguished car into the bargain, is an excellent illustration of the many good qualities that the N.E.C. design makes manifest. It is fitted with arm-chairs so that all passengers can face forward, a point of real value in touring, for there is nothing so tiresome as to be the occupant of an extra collapsible stool whereon, pivoted in insecurity, one is whirled through space backwards for a journey of 50 miles or so.

This, together with two other real automobiles de luxe, will serve as the attraction on the N.E.C. stand at the Show, and we hope that no visitor will pass by without taking the trouble to consider the special points that distinguish these machines from the majority. They have been on the market a long while, which is at any rate evidence that they are capable of standing up to their work. Besides, they are designed by quite one of the cleverest engineers in the industry.

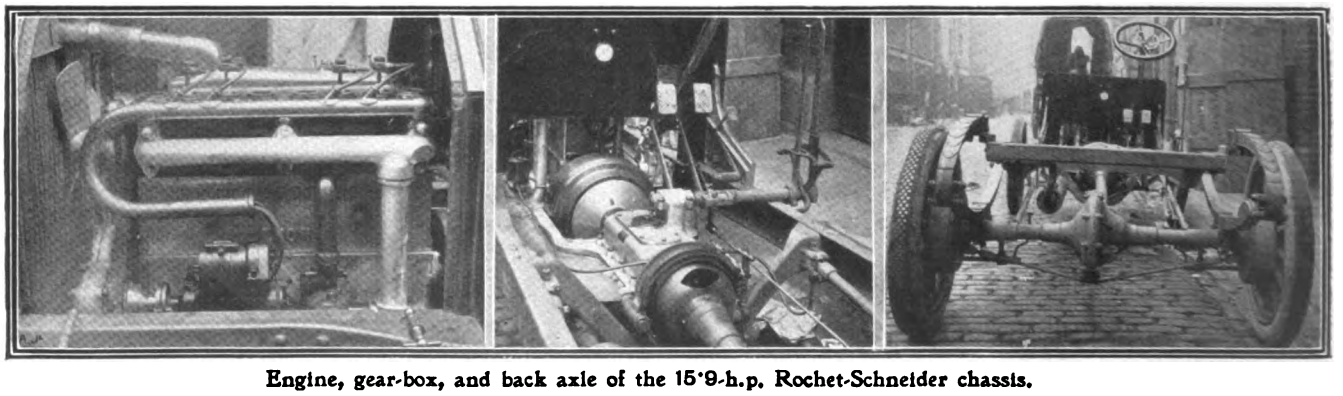
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ROCHET-SCHNEIDER CARS.

Messrs. Rochet-Schneider, of Lyons, one of the oldest established firms of motor manufacturers, who, until recently, have been represented in this country by an agent, a short time ago opened a London depôt at 124, Shaftesbury Avenue. In these well appointed showrooms a number of chassis and complete cars are always on view, and the models, which we recently had occasion to examine, fully uphold the reputation for strength, quality and workmanship, for which Rochet-Schneider cars have been known ever since their inception in the very early days of motoring. Especially is this true, moreover, of the 15·9-h.p. chassis, which is one of the latest types, for the model in question appeals to us as being a well thought out and splendidly made engineering job, inspiring confidence by its solid construction, no less than by its workmanship and fine finish.

The four-cylinder engine, which has a bore of 80 mm. and stroke of 130 mm., is cast *en bloc*. Thermo-syphon cooling is used, and the action of the radiator is assisted by a belt-driven fan. This fan is mounted on a bracket in such a manner that the tension of the driving belt can easily be adjusted, as can be seen from the first of our sketches. The valves are placed in a row on the near side of the engine, and are boxed in by a substantial aluminium plate; the cam-shaft and the magneto are driven by spur wheels.

A Zenith carburettor supplies the explosive mixture while a Bosch high-tension magneto is responsible for the ignition. Engine lubrication is by pressure pump, which feeds the oil to the main bearings, of which there are three, and through the hollow crank-shaft the lubricant reaches the big-end bearings.

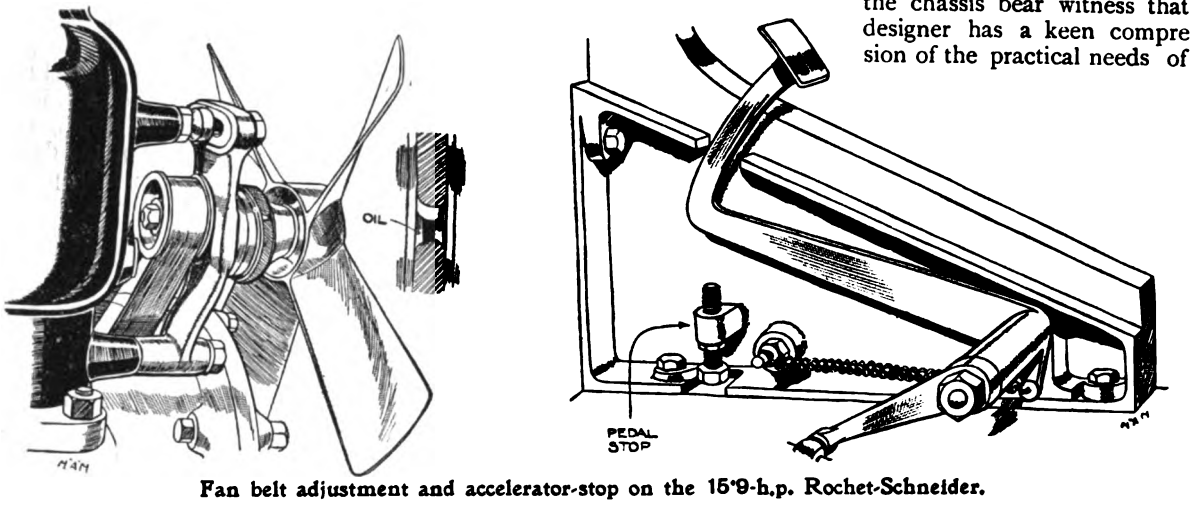


Engine, gear-box, and back axle of the 15·9-h.p. Rochet-Schneider chassis.

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An inverted leather cone-clutch transmits the engine power to the gear-box, and a particularly good feature of the clutch is the special provision made for oiling the slide of the clutch-sleeve on the shaft. The rollers of the withdrawing fork are provided with ball-bearings and are kept off contact by a special spring, so that no noise can be caused by them. In the third of our sketches, which shows the main features of the withdrawing gear, the strain, while the drive of the axle is applied to the chassis by a pair of radius rods. Particular attention seems to have been paid to the attachment of the radius-rods, which are fastened to the rear axle by means of a small fork, while at their forward ends they are anchored to a cross girder of the chassis by a well constructed ball joint. Ample provision is made for their lubrication.

Various refinements, which are to be found throughout the chassis bear witness that the designer has a keen comprehension of the practical needs of the

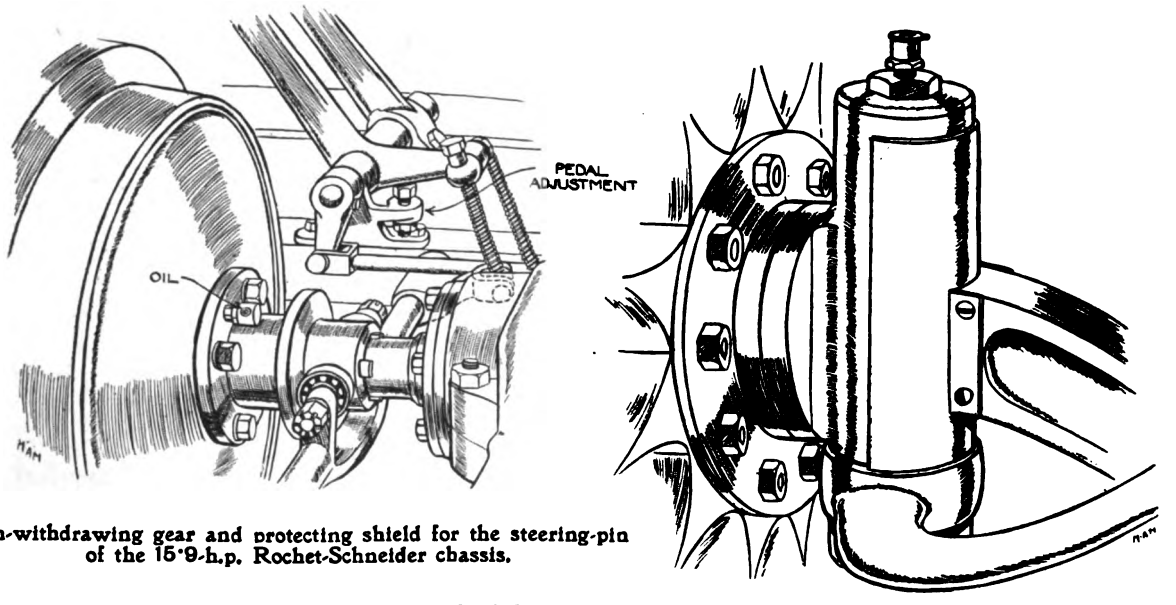


Fan belt adjustment and accelerator-stop on the 15·9-h.p. Rochet-Schneider.

very simple adjustment of the clutch-pedal is made clear.

Four speeds and a reverse are contained in the gear-box; they are controlled in the usual manner by a lever working in a gate. The gear-box itself is bolted to an extension of the engine casting, so that with the engine it forms one unit. An entirely enclosed propeller-shaft

motorist, and the control levers are placed within easy reach of the driver. Two of the minor details, but by no means the least significant, are shown in the second and fourth of our sketches, which illustrate the very simple yet effective stop under the accelerator-pedal, it releases the whole of the carburettor control gear of the strain exerted upon it by the often heavy foot of the driver at



Clutch-withdrawing gear and protecting shield for the steering-pin of the 15·9-h.p. Rochet-Schneider chassis.

conveys the power to the rear axle, where the final drive is by bevel gear to the road wheels. The latter are shod with 815 by 105 mm. tyres and run on ball-bearings mounted on the axle casing in such a manner that the axle-shafts are relieved from all but driving strains, and the whole weight is taken by the sleeves. The axle casing, as can be gathered from our illustration, is a neat and substantial job, and contains provision for lubricating the differential-case, which is easily accessible. The propeller-shaft casing is only intended to take the torque

the maximum throttle opening, and in doing so is likely to prevent a good deal of the wear on the joints and the throttle-spindle. The last of our sketches shows the shields, which are bolted to the front axle in such a manner that they prevent any water or grit reaching the thrust bearing of the steering-pin, and doing harm to the balls.

Those on the lookout for a well-built car, of excellent wearing qualities should not fail to take Rochet-Schneider cars into consideration.

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A CONVENIENT AND COMFORTABLE TOURING CAR.

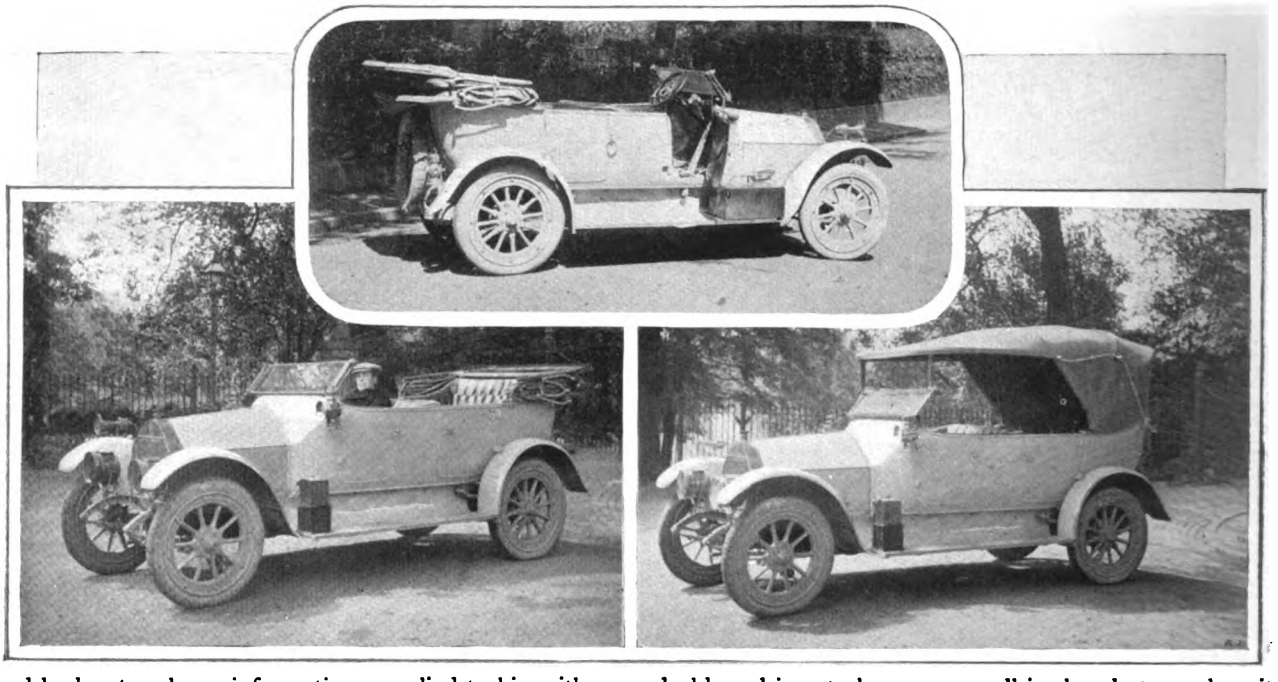
OUR illustrations reproduced on this page show a very practical type of torpedo body fitted to one of the latest 15–20-h.p. Baguley chassis. The chassis is built at the Baguley Co.'s works at Burton-on-Trent, while the body-work has been built by Messrs. Buckingham, of Birmingham, to a special design of Messrs. Alfred Huggins and Co., Ltd., of 68, Broad Street, Birmingham, to whom we are indebted for the photographs.

The carriage-work embodies a number of features that are interesting, in so far as they are the direct outcome of a very extended experience on the road. The designers have found that the average coachbuilder comparatively rarely gets out on the road, so that he does not know from personal experience what is really required, and he has to rely on information supplied to him either by the manufacturer of the chassis or by his client. The motor agent, however, on account of his unique experience with manufacturers and users of motor cars, is often better in a position to judge what is practical and convenient, and the car shown herewith to a great extent bears out the truth of these remarks. The front seats, for instance, are adjustable in three directions—they can slide backwards and forwards, they can be raised and lowered, and they can be tilted within certain limits to suit the convenience of short or tall drivers. From the uppermost of the illustrations, it will be seen that the seats have been so arranged that the change-speed and brake levers are arranged in such a manner as to allow for an easy entrance to the driver's seat from the off-side. This convenience, however, has not been spoilt, as it is so often, by carrying the spare wheel on the off-side step; in this case the wheel has been accommodated at the rear.

The hood is a simple type of one-man hood, and when erected is rigidly connected to the wind-screen, so that front straps and front sticks could be dispensed with. At the back of the hood a loose flap is fitted, which allows the air to pass out above the heads of the occupants of the rear seats. It is claimed for this arrangement that it successfully eliminates the objectionable draught around the shoulders of the passengers when the hood is up.

Instead of the original bonnet, a new sloping type has been fitted which merges into the lines of the dashboard without any unsightly step. The exact shape of the dashboard is not shown very well in the photographs; it is a combination of convex and concave curves, which form a pleasing connection between the more or less straight lines of the bonnet and the round lines of the body-work. Ample space for tools and spares is provided under both seats, in addition to the mahogany box on the off-side step. The equipment of the car is, as can be expected, very complete and of the best quality; it consists of Rushmore head-lamps, Lucas side-and-tail lamp, Stewart speedometer, and Warland detachable rims.

The car has been supplied to a well-known Warwickshire gentleman, who has been so pleased with its performance that he has taken it out with him to Rhodesia, where, we are told, it continues to do excellent service.



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Motor Car for a J.P.

IT is not very often that one hears of a Chairman of a Bench being presented with a motor car, but such a tribute was paid to Mr. W. Embleton Fox at Lincoln last Friday week, in token of his splendid work as Chairman of the Lindsey Council and Lindsey Quarter Sessions. The presentation was made by the Earl of Yarborough, and in addition to a 20-h.p. motor car included an illuminated album containing the names of one hundred subscribers.

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An Exhibition in New Zealand.

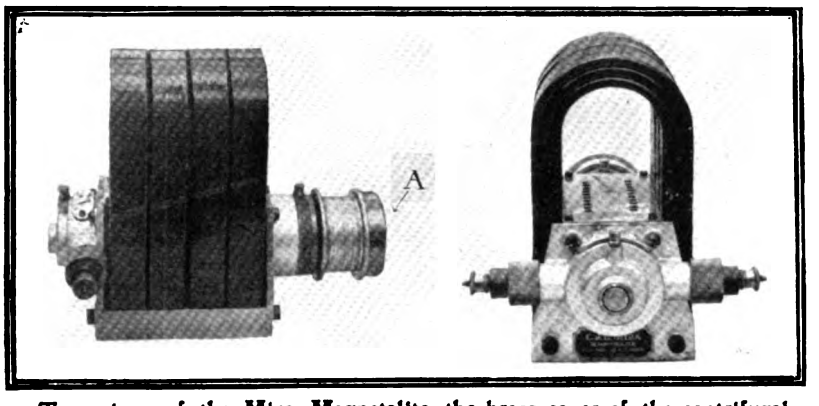
A GOOD opportunity for the introduction of low priced British cars into New Zealand will be afforded by the Industrial Exhibition to be held in Auckland, N.Z., next year, at which a special section will be devoted to motor cars. The Exhibition will open on December 1st, 1913, and will close towards the end of February, 1914, while applications for space should be sent to the Secretary, Mr. W. R. Holmes, Herald Buildings, Queen Street, Auckland, N.Z.

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DYNAMO LIGHTING SETS.—VIII.

THE MAGNETOLITE.

AT the time of its introduction, about four years ago, the Mira Magnetolite was hardly more remarkable for its simplicity than it is now when so many other designs have come to keep it company on the market. Its improvements, although important, have not been startling, for there was so little to alter. The use of die castings, a copper commutator, and large square brushes, are incidental requirements that make for perfection in working, but are scarcely to be held up for general view as matters of radical reform.

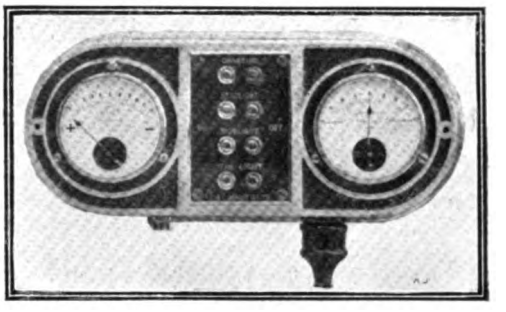


Two views of the Mira Magnetolite, the brass cover of the centrifugal cut-out being indicated in the left-hand photo at A.

The generator still consists of an eight pole drum wound armature, revolving inside a casing formed by twelve permanent magnets, arranged in three rows of four. The armature reaction on the permanent magnets at high speeds is the force employed to restrain the voltage from rising beyond a certain point.

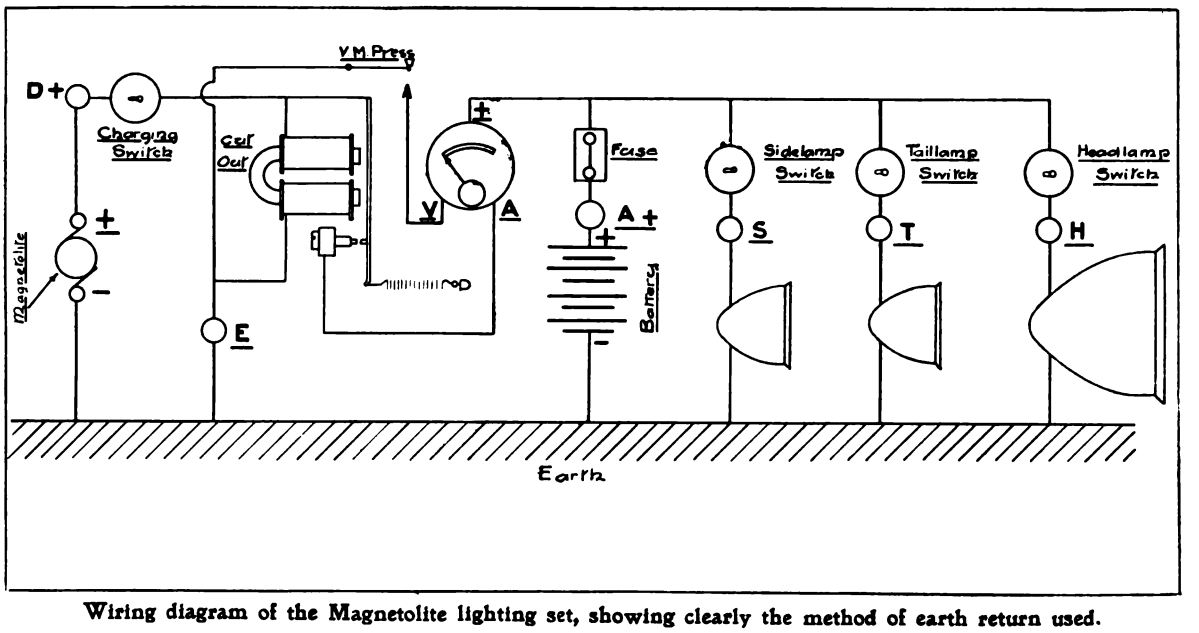
The makers suggest that the machine should be so geared as to give 4–5 ampères at 20 m.p.h. car speed. This gear will generally arrange for the maximum cutting-out effect to occur when the output has reached, say, 10 or 12 ampères at the highest speed of the car or engine. The batteries supplied can quite easily carry this current even for long periods.

In the event of an accident to the battery, the lamps *can* be lit direct from the dynamo, if the dynamo is not raced in any way, without much risk of burning out the filaments. An advantage of this machine is that by merely speeding up the armature the voltage may be raised, although a slight alteration in the gauge of the armature wiring renders better results obtainable. At a normal speed, the output of the machine under review is 25 to 35 watts, which with metal filament lamps is equivalent to a corresponding number of candle-power.



The new switchboard of the Magnetolite set.

While on the subject of altering the output, it should be borne in mind that, in deciding on the gear-ratios, allowance should be made for the proportion of day- to night-running; that is to say, if there is considerable day-running and very little night-running, the gear-ratio and consequently the output may be low, and *vice versa*.



Wiring diagram of the Magnetolite lighting set, showing clearly the method of earth return used.

An important point in which the present installation differs from the earlier models is in the matter of the cut-out. Originally, this was of the magnetic-solenoid type, and was mounted on the car dash. At the present time

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a centrifugal cut-out is used, placed at the end of the armature-spindle, and enclosed by an easily removable brass cap.

It is very easy, therefore, for the cutting-in speed to be altered by simply fitting a new spring or by altering the tension of the one in use. Naturally, this operation should be left to the makers, or, at any rate, to someone well acquainted with the set.

A new switchboard in aluminium, of excellent design and appearance, has recently been brought for the Magnetolite outfit, and forms the subject of one of our illustrations. The former board was provided with a combined ammeter and voltmeter reading on the same dial, it being necessary to cut off the charging current before the voltage of the batteries could be read. In the new model both meters are permanently in circuit, in addition to which the ammeter gives charge and discharge readings. The switches are of the push button pattern, a system that is becoming very popular with car dynamo designers. Among the advantages of this type of switch are its nice appearance, durability, and, particularly, the quick make and break of the connection, a point in which the old type tumbler switch was at a distinct disadvantage.

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THE POLICEMAN'S POINT OF VIEW.

IN last Sunday's *Observer* there appeared what purports to be an interview with a London constable, whose views on motor traffic, while they may have their humorous side, contain quite enough of the spirit of practicality to give them a distinct value of their own. In fact, so well do they convey the impressions of the constable on traffic control duty that we quote them without any added comment of our own :—

"Every motor 'bus or taxi," he said, "that comes into collision with another vehicle does it because he knows one has got to give way, and he reckons if his luck holds it won't be him. His luck doesn't hold for ever, so there you are, an accident. When I ask them they say they couldn't pull up or didn't see. But I'll tell you something. There are two things they never bump into : one's us and the other's heavy vans. You see, they don't like bumping into us nor heavy vans. And if they can pull up for us and the vans, having first seen us, then they can for other things—but they won't. They simply don't want to be the one that gives way. That's the crux of the whole trouble—vanity and laziness, which comes in time to mean reckless driving.

"The best thing I can see to be done at first," continued the man in blue, to whom the writer was clinging closely, the very pivot of a whirling, destroying mass of men and iron—"the very first thing is to cut down their opportunities for going fast wherever you can. Fines and imprisonment aren't much good. If you widen a street you increase the death-rate in it, for they are all over the place immediately at breakneck speed.

"It's the same if you cut off right-angled corners. Why, right-angled corners is salvation. They want to take away the one by the top of Park Lane. Wait and see what happens if they do. Isn't it bad enough there already, with what they call the Marble Arch improvement? It's the most dangerous improvement that ever was, and the gentleman who thought it out and did it isn't no more than a landscape gardener. He's no road designer, and he hasn't got a curve in it that makes for safety. Wide open spaces like that aren't wanted for fast motor traffic that can't be controlled.

"About the best friends the police and public have is the lamp standards down the middle of Oxford Street and in some other streets. You mightn't think it, but it's true. They keep the traffic in order better than any human could. You get more of those, less of beautiful sweeping cut-off corners and leave your open bits for the children to play on, and not turn them into roadways, and your death rate will be lower, and not before. Good day, sir, thank you ; mind that taxi, sir."



THE LATEST CREATION OF M. BLÉRIOT, "PHYDRE No. 3."—This water-glider consists of three floats, two, as will be seen, being at the rear and one in front, joined together by a superstructure on which seats are provided for the passengers. Steering is effected by means of the air rudder besides water rudders, the propulsion being by means of an air propeller driven by a 50-h.p. Gnome motor.

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S. F. EDGE.—A PERSONAL APPRECIATION

AND HIS SUCCESSOR, MR. H. T. VANE.

S. F. EDGE has retired from the motor industry, and D. Napier & Sons have acquired the control of the firm through which their cars have exclusively been sold since they first came on the market. Mr. H. T. Vane, who has been Mr. Edge's right-hand man from the beginning, will take his place, and assumes responsibility in a position of importance that is second to none in the world of cars. Firstly, therefore, it is meet to offer congratulations to the new head of the firm, and wish him a full measure of success in his great undertaking.

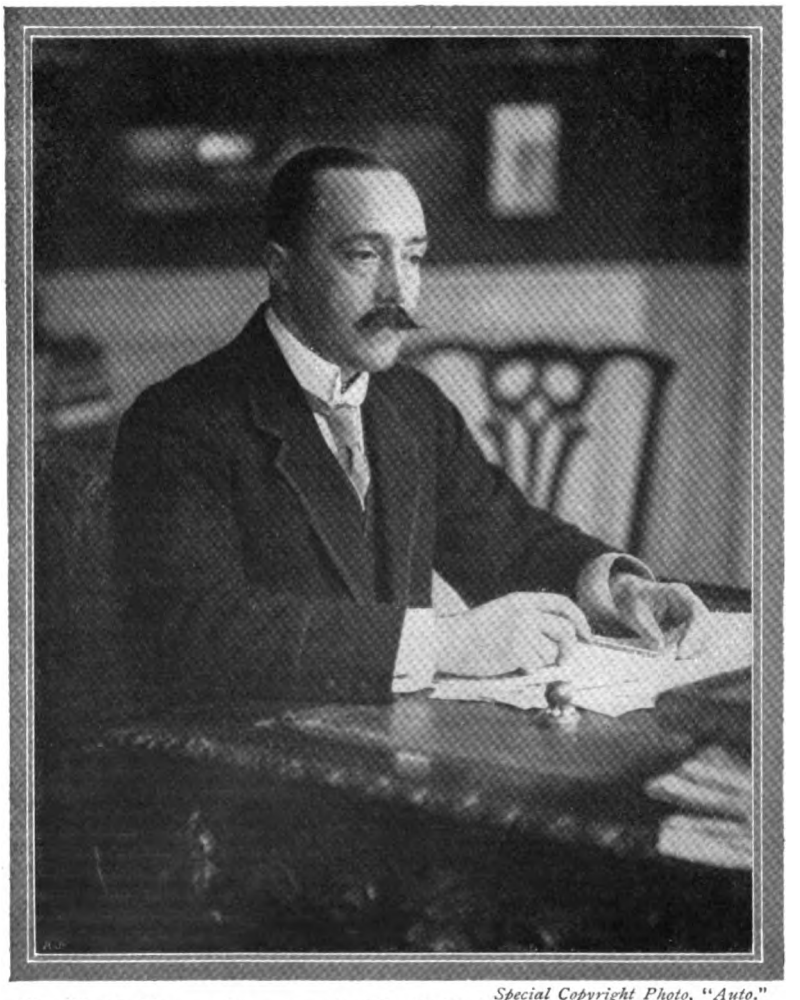
Some people might say the position is already the reward; but Mr. Vane has a broader mind than this, for he has his former chief's strength of character to look upon power in its true light as opportunity for further effort. Such a position as this carries with it duties and responsibilities that cannot rest solely upon one man; in the loyalty of his colleagues lies Mr. Vane's strength, and even an outsider could see enough of the *morale* of the firm under Edge to feel fully convinced now that its many members will still follow the standard to a man.

At the very height of prosperity, the new hand grasps the helm while the ship is still on the high seas of commerce with wind and tide in its favour. Last year was the most successful period of its long career; this coming year will be even better, for the deposits on orders already placed in advance far exceed in value those in hand last October. Could any outlook be brighter? Yet who but a fool would shut his eye to the ever-present possibility of an unexpected storm? The sea of industry is always flecked with scud, clouds gather in the sky at night, and the dawn breaks grey. Only the skippers of strong will and purpose carry their cargoes to port again and again.

S. F. Edge has been one of these men, and while still young he has made two fortunes—one in money, the other in mind. Of these, he values the latter infinitely the more, and it is for this reason that he has retired so soon, in order that he may have time to develop new phases of thought that were born, but necessarily neglected, during the stress of his affairs.

While he was building up his business he used his mind in his work to such purpose that he seemed to spread around the goddess of opportunity herself a net so fine in mesh that it ensnared her merest glance on his behalf. His belief in the influence of small things was so profound, as to make him take infinite pains over detail, although in his mind's eye such things were only as the pebbles on the high road of progress. During the earlier days of motoring, the public was more interested in the person than in the car, and Edge was one of the first to realise it. Alone, even among those first few, however, did Edge pursue his advantage to its furthermost end by building up a business about his own name *for the Napier car* in such wise that the natural transference of public interest from the individual to the machine continued automatically the construction of the firm's fortunes, which he personally founded.

To-day, when orders for Napier cars come from all over the world as regularly as clockwork, the business of S. F. Edge, Ltd., is very different from what it was when the history of almost every enquiry was known to Edge himself, as indeed were nine customers out of ten. Men were motorists in those days, and there was a good deal of the partizan feeling among the owners of different makes of cars; so there is, of course, to-day, but the use of the car has become so widespread as to be universal rather than the privilege of a mere community.



Special Copyright Photo, "Auto."

Mr. H. T. Vane, who succeeds Mr. S. F. Edge in the great business created under that well-known name.

Among the pioneers, no man has done more for the industry than S. F. Edge, nor has anyone been a more strenuous advocate of the English car for the English people. True, he had his axe to grind; but who in business has not? and, if Edge gained inspiration for his arguments in favour of the British industry from the fact that his livelihood was wrapped up in the sale of a British car, his assertions gained rather than otherwise from the connection. To-day, when he no

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longer stands at the grindstone, or rather, is no longer grinding his own axe—for the last thing that Edge intends to do is to stop working—it is his personal experience that will give his opinion its real value. In the fact that he knows how a situation looks to the business man will lie the strength of his argument on the merits or demerits of a proposition to alter it. Although he is no longer to be associated by financial interests in the industry, he will not cease to play an active part in its welfare wherever opportunity offers, as, for instance, with the Society of Motor Manufacturers and Traders, wherein he has already done so much good work. The automobile industry is the ladder up which Edge has climbed to his fortune, and although he has been accused of many things in the heat and enthusiasm of commercial rivalry, it was never suggested that he was a man who would kick away the "steps."

Indeed, no one could have succeeded in building up such a business as that which Edge now leaves, who failed to recognise and appreciate the support of his associates.

Now that he is a little free from the responsibility of management, he can afford to spend more time on informing himself about many things in which he takes a most intense interest. Some people have thought that Edge wanted to go in for politics, and if politics were more directly concerned than they are with the business-like management of the nation's commercial welfare, few people would be better fitted to work for the country's good, for Edge has indefatigable energy, and is the most persistent enquirer after the truth and "the reason why" that it is the possible misfortune of any prevaricating subordinate to meet. You might hear that one of Edge's hobbies was a dairy farm, and so, in a measure, it is; but the reason why that farm was started was because he could never find anyone to give him a satisfactory explanation of why it was "impossible" to run a pure milk supply at a profit. When he came to look into the question of dairy farming, he found that the average conditions were primitive and filthy. Destructive criticism makes no appeal to Edge, however; and while he was disgusted at the fact, he determined to find out for himself how far the evil might justly be condemned in the light of prevailing circumstances. The result is a dairy farm near his country place where milk and butter are produced under sanitary conditions and on businesslike lines to provide facts for his criticisms and, incidentally, wholesome food for the lucky purchaser.

When you get a man who will take the trouble to use his money in this manner, it is a sure and certain thing that he is wasted at the head of a business so well-established and profitable as that of his famous firm. In a sense, he is beginning his life afresh—is making, as it were, a voluntary reincarnation in full possession of the memory of his past existence. He knows the responsibility of wealth and has accepted the onus of making good in a difficult task—perhaps the most difficult that a man can face—yet Edge will win.

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CORRESPONDENCE.

Unofficial Trials and the Victor Tyre.

SIR,—I resent the offensiveness of Mr. William George's letters published in AUTO.—they are in bad taste and guilty of many impertinences.

Without a shadow of excuse he covertly insinuates that the Challenge Rubber Mills made special tyres for the trial.

That Sir Thomas Lipton and other well-known motorists who purchased the tyres for the test, did so in such a way that the Challenge Co. knew that they were to be used in the Tyre Test. That the Victor tyres for the test may have been fresh and their competitors' perished—and so on.

And the limit of impertinence is reached by the suggestion that Mr. Yarworth Jones should publish proof that his firm had acted unfairly. No one has ever even hinted that it had, and I take it no right thinking person would think so without cause.

Despite the courteous and convincing answer contained in Mr. Yarworth Jones' letter in your issue of October 19th, Mr. William George returns to the attack.

I suggest that Mr. George leaves the conduct of the test to the committee, of which I am glad to say I am a member. Most of us are practical motorists. Mr. George, judging by his statements, evidently is not.

Yours faithfully,

12, Culford Mansions, S.W. TENTERDEN.

SIR,—Mr. "William George's" statement that one of his questions was not answered is as false as the name he uses and the address he gives. "William George" is not the gentleman's name, nor is the address he published his own.

In my letter to you, Sir, all the material points raised by your mysterious correspondent were dealt with. But "Mr. George" adopted the unusual method of duplicating his letter to you, and sending it to several other papers. My letter to you was dictated *before* I was aware that "Mr. George" was communicating with your contemporaries. When I saw these duplications I realised at once that "Mr. George" was concerned for something more than information. Therefore I dealt with *all* his points, material and immaterial, in the *Autocar*. "Mr. George" says he also reads the *Autocar*.

"Mr. George" makes a covert attack under the guise of a request for information. "Mr. George" is *not* Mr. George, I find, nor does he reside where he says he resides. And "Mr. George" endeavours to make a damaging point by stating that I have not replied to all his questions when he knows I have replied.

W. YARWORTH JONES, Managing Director,

October 26th. Challenge Rubber Mills.

Hydraulic Variable Gears.

SIR,—As you and your readers would, no doubt, be interested in any new form of variable speed gear, I venture to send you a short description of an improved type, for which I have recently applied for a patent.

It is indisputable that the hydraulic form of variable speed gear is the ideal type from a theoretical point of view. Its principle of interchange of speed and torque by infinite gradations constitute a perfect machine for its purpose.

The practical advantages are chiefly a range of control meeting exactly the conditions of load, absence of shock and silent running. Hitherto, as you are doubtless aware, the greatest drawbacks to the adoption of this type of gear to motor vehicles has been its weight and excessive cost as compared with the usual type of spur-wheel change-speed gear.

My hydraulic gear will compare most favourably with those of a similar type at present on the market. From careful comparisons made, I estimate my gear could be manufactured at a quarter to one-third of the cost, and for less than half the weight, for the same power and efficiency.

When compared with the ordinary spur type of speed gear, it would more than hold its own. For the same power it may be slightly heavier, and the initial cost possibly 10 per cent. or 20 per cent. more, but the cheaper in the long run. I should not hesitate to give a lengthy guarantee with each gear.

I might mention that the essential parts of this gear in its most simple form and ready for running, would number less than 30. In this total I have purposely excluded screws, nuts and split pins.

The control can be positive or automatic. In the latter case a car when meeting a hill will automatically decrease its speed and increase its torque on the road wheels to meet the new conditions, the engine, of course, running constant. In the case of a car starting from rest the gear will drop practically instantaneously to the range of gear required, and accelerate as quickly as the conditions and engine power will permit. This, I consider, is a feature which will appeal to the majority of motorists.

An 8-h.p. gear is about to be constructed for testing purposes, and I hope in the near future to offer you, Sir, and any of your readers

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who so desire, an opportunity of witnessing a practical demonstration.

New Malden. C. GITTENS.

Official Tests for Motor Car Lighting Sets.

SIR,—We read with pleasure Mr. Edge's remarks *re* tests of electric lamps and dynamo sets upon the road, for the safe-guarding of the public from inefficient systems. It seems to us a pity that the claims of more of these sets have not been put to the test of a R.A.C. trial, so that a final eliminating competition might take place, systems not already holding a certificate to be barred. As, however, this is hardly possible, owing to the scarcity of dynamo systems holding a satisfactory R.A.C. certificate, we should be interested to see a competition amongst those systems who have not yet made good their claims.

In drawing up the rules for the competition, we suggest that a "dark-clothed pedestrian" hardly affords a very scientific unit for illumination, and that a photometric test be included in addition. Other factors which influence the public are size, weight, simplicity of construction, wiring and fitting, and lastly (although this can hardly come within the rules of a competition) price. We also agree that for cars that are much used at night the mean load should exceed the mean output, and machines such as the Magnetolite, which can be varied to meet changing conditions, have a big pull, but machines with a low fixed output should not necessarily be barred, because this is necessarily their misfortune as well as their fault, and people buy these machines knowing their limitations and probably only requiring them where there is daylight charging. Let all systems that have not made good therefore be tried, and let the best win.

62, Belvedere Road, S.E. THE HIGH TENSION CO., *per* M. A. CODD.

SIR,—I have read with great interest the letter written by Mr. S. F. Edge in this week's issue of the AUTOMOTOR JOURNAL dealing with the question of motor car electric lighting sets. I agree with him that it is absolutely necessary for the protection of the buying public that independent tests should be held so as to give information on a number of points.

I do not think, however, he covers the ground entirely under the headings he enumerates. It must be borne in mind that for an electric lighting outfit to be efficient it must be reliable, and a plain straightforward test, which the public can understand, which deals with lighting efficiency and reliability would, I think, cover the ground. This was the view I held so long as fifteen months ago, and for that purpose I arranged with Mr. John Polkey to submit the Polkey-Jarrott outfit, which we were then just putting on the market, to a trial officially observed by the Royal Automobile Club. The test was so simple that anyone could understand it, and if every electric lighting outfit were compelled to submit to a similar test, I think we should be able to count the number of really efficient lighting outfits on the fingers of one hand.

The following were the conditions :—

1. The trial to take place at night, and to extend over fourteen nights.
2. The lighting to be tested for a period of seven hours each night, and a total period of 100 hours over a running distance of 2,000 miles.
3. The trial to start with empty accumulators. The car to be driven for six hours prior to the actual lighting of the lamps—such running not to count in the 100 above mentioned.
4. Six lamps to be used. Two head lamps, two side lamps, tail and dash lamps.
5. One hundred miles to be run through London streets and under ordinary traffic conditions.
6. The trial to take place from London, and the car to return to London.
7. Note to be taken of all adjustments, and repairs executed to the equipment during the trial.
8. Note to be made of the condition of the equipment at the expiration of the trial.

As to the manner in which the Polkey-Jarrott outfit performed, I would refer you to the certificate given by the Royal Automobile Club. The car used was a 20-h.p., and the light was particularly brilliant, and much superior to the light given by ordinary acetylene lamps. I contend that if every outfit could successfully go through a trial on the simple lines I have set out, it would justify its existence.

Another important point which Mr. Edge has overlooked is that the light should be given at a steady pressure, regardless of engine speed. I can imagine nothing more dangerous than to have a lighting outfit on a car which cannot be relied upon, as in the event of a breakdown, risks have to be taken by the driver which are neither justified nor fair to enable him on a dark night to reach his destination.

CHARLES JARROTT.



A COUPLE OF TROPHIES WHICH THE SUNBEAM CARS BROUGHT BACK FROM FRANCE.—On the right is the Coupé de Regularite, awarded to the three Sunbeams in the Grand Prix for the best team performance. On the left is the Coupé de l'Auto which was awarded to Regal's Sunbeam for winning the 3-Litre Class. Both these very fine bronze trophies are imposing works of art, the former measuring 4 ft. 6 ins. at the base, the Coupé de l'Auto being 4 ft. 6 ins. high without pedestal.

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CARS AT OLYMPIA AND 1913 MODELS.

Adams (ADAMS MANUFACTURING CO., LTD., Bedford).

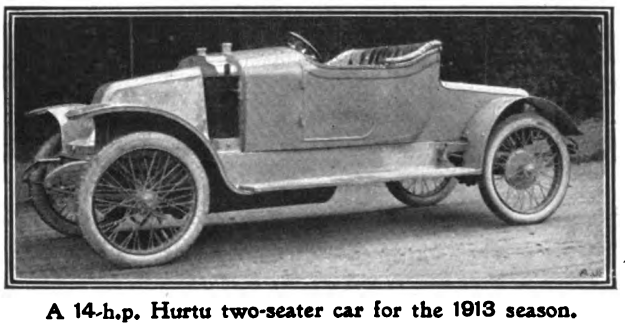
THE Adams programme for 1913 is one model only—the 16-h.p. 4-cyl. (88 mm. by 120 mm.). The chassis remains very much the same as for 1912, the self-starter still forming an important feature. Four cars will be shown at Olympia on Stand No. 83, viz., a chassis, a cabriolet, a five-seater torpedo and a coupé (three-seater) with new style of radiator, the other three having "A" radiators.

Albion Cars (ALBION MOTOR CAR CO., LTD., Scotstoun, Glasgow).

THREE 1913 models will be on Stand 51 at Olympia, all of 15-h.p., with 4-cyl. monobloc engines, 3½ in. by 5 in. bore and stroke. One of these will be a chassis, similar to that shown for the first time in 1911, and suitable for a touring body. The other models will consist of a station 'bus to seat ten persons, and a shooting brake to seat eight persons. All models have overhead worm drive.

Alldays' Cars (ALLDAYS AND ONIONS, Matchless Works, Birmingham).

THE only modification in the design since last year will be that the silent timing chain will be adjustable. Four cars will be seen at Olympia on Stand No. 40, viz., 12-14-h.p., bore and stroke



A 14-h.p. Hurtu two-seater car for the 1913 season.

3 ins. by 4⅜ ins.; two 16-20-h.p., bore and stroke 3⅜ ins. by 5⅛ ins.; and a 25-30-h.p., bore and stroke 4 ins. by 5½ ins. Other models that will be built for 1913 are the 2-cyl., bore and stroke 3⅜ ins. by 4½ ins.; 14-18-h.p., bore and stroke 3⅜ ins. by 4½ ins., and the 30-35-h.p. 6-cyl. model, with a bore and stroke of 3¼ ins. by 4½ ins.

Ariel Cars (THE ARIEL AND GENERAL REPAIRS, LTD., 324, Camberwell New Road, S.E.).

ON Stand No. 117, two out of the five Ariel cars for 1913 will be exhibited—an 8-h.p. and a 25-h.p. The former model is an entirely new one, and has a twin-cylinder engine, 85 mm. by 85 mm., two speed-gear, and chain-drive. The 25-h.p. has a four-cylinder engine of 130 mm. by 130 mm. bore and stroke—same as 1912. Chassis price, £450. The other models for 1913 will be as follows:—12-h.p. 4-cyl. 76 mm. by 120 mm. (bore and stroke have both been increased), chassis price, 8 ft. 3 in. wheel-base, £255; 8 ft. 8 in. wheel-base, £280; 15-h.p. 4-cyl. 80 mm. by 130 mm., chassis price, £395; 20-h.p. 4-cyl. 90 mm. by 130 mm., four-speed gear-box, chassis price, £395. These prices include tyres.

Armstrong Cars (SIR W. G. ARMSTRONG, WHITWORTH AND CO., LTD., 3, Blenheim Street, W.).

FOUR types of Armstrong-Whitworth cars will be shown at Olympia on Stand No. 85, including the 15-20-h.p., 80 mm. by 130 mm.; 17-25-h.p., 85 mm. by 135 mm.; 25-30-h.p., 100 mm. by 120 mm., and the 30-50-h.p., 90 mm. by 150 mm. (6-cyl.). The 25-30-h.p. is more or less new, and takes the place of the 22·5-h.p. and the 25·5-h.p. 1912 types. The cam-shaft and magneto are chain driven, and the design of the chassis is based on results obtained from the 6-cyl. car. The latter remains very much the same, except for minor details, and in a choice of either worm or helical bevel for the final drive. Overhead worm drive with the choice of two gear ratios has been adopted for the 15-20-h.p. standard model which, otherwise, except for a few minor improvements remains unaltered, as is also true of the 17-25-h.p. car. Colonial models of these cars will also be made.

Austrian-Daimler Cars (AUSTRIAN DAIMLER MOTOR CO., LTD., 112, Great Portland Street, W.).

1913 models to be exhibited at Olympia on Stand No. 113 include 16-25-h.p. Alpine two-seater, 16-18-h.p. coupé, 20-30-h.p. cabriolet (new model), 35-60-h.p. torpedo body of new design, and a 27-80-h.p. Prince Henry chassis. In design the 20-30-h.p. follows the 35-60-h.p. model.

B.S.A. Cars.

AS in 1912, one model only will be turned out by the Birmingham Small Arms Co., Ltd., Sparkbrook, Birmingham, viz., the 13·9-h.p. 75 mm. by 114 mm. Three types will be shown at Olympia on Stand 57, two with four-seater and one with two-seater bodies of the new all-steel pattern recently described in the AUTO.

Buchet (BUCHET CAR AGENCY, 69, Drayton Gardens, South Kensington, S.W.).

ONE type of Buchet car will be made in 1913, namely, the 12-20-h.p. 4-cyl. (76 mm. by 120 mm.). No departures from the present season's model have been made, and the price of the chassis, with tyres, is £295.

Benz (BROMPTON MOTOR CO., LTD., 78, Brompton Road, S.W.).

NO fewer than eight different models of Benz cars are listed for 1913, including 12-20-h.p. (72 by 120 mm.), 15-25-h.p. (80 by 130 mm.), 25-30-h.p. (90 by 140 mm.), 28-35-h.p. (95 by 140 mm.), 35-45-h.p. (120 by 144 mm.), 40-65-h.p. (130 by 160 mm.), 100-h.p. (130 by 190 mm.), and 200-h.p. (185 by 200 mm.). All have 4-cyl. engines, leather-cone clutch, 4-speeds, and bevel drive (except 200-h.p. which has chain drive). Three cars will be at Olympia (Stand No. 28), a 12-20-h.p., 15-25-h.p. and 35-45-h.p.

Calthorpe Cars (CALTHORPE MOTOR CO. LTD., Birmingham)

HAVE decided to continue their three popular models of the same rating for the coming season, viz., 12-15-h.p. (69·5 mm. by 125 mm.), chassis price (2-seater) £225, (4-seater) £235; 15-h.p. (80 mm. by 150 mm.), chassis price £303; 20-h.p. (90 mm. by 150 mm.), chassis price £370. The suspension has been improved in both the 12-15-h.p. and 15-h.p. models, and the wheelbase of both models has been increased to 8 ft. 6 in. and 9 ft. 6 in., respectively. (Stand 96).

Chenard Walcker (CHENARD AND WALCKER, 174-176, Great Portland Street, W.). (Olympia, Stand 19).

A NEW introduction is the 11·9-h.p. with 4-cyl. (69 by 130 mm.) engine which will be sold with either two-seater or four-seater body, for £300. Two other new models are the 12-18-h.p. 4-cyl. (75 by 150 mm.), and the 24-30-h.p. 6-cyl. (80 by 150 mm.), the chassis prices being £285 and £495 respectively. The 16-20-h.p. model, which comes into the 15·9-h.p. class, is being retained unaltered except for the addition of a few inches in the wheelbase.

Darracq (A. DARRACQ AND CO., LTD., Walnut Tree Walk Kennington Road, S.E.).

TWO new Darracqs are listed for 1913, as well as the present 10-h.p. and 22-h.p. cars They will be on Stand 100 at Olympia, and will have 4-cyl. rotary-valve engines, 12-h.p. (75 mm. by 120 mm.) and 16-h.p. (85 mm. by 130 mm.). Prices: 12-h.p., chassis, with tyres, £240; two-seater torpedo, £275, and four-seater torpedo, £240, both complete with five detachable wood wheels, hood, screen



The new 1913 16-h.p. valveless Darracq car, with sloping bonnet and torpedo body.

and accessories; 16-h.p., chassis, with tyres, £290 and £300; two-seater torpedo, £330, and five-seater torpedo, £350.

Deasy and Stoneleigh Cars (DEASY MOTOR CAR MFG. CO., LTD., of Parkside, Coventry). (Olympia, Stand 42).

TWO new models will be incorporated in next year's Deasy programme. Last year's 12-h.p. car will be superseded by the 12-h.p. Stoneleigh car, and the other new comer will be the light type 18-24-h.p. Deasy, which is only intended for an open body, and designed to give greater speed and entail less gear changing than the heavier models. Of the three other models the 14-20-h.p., and the 18-24-h.p. have 4-cyl. engines, while the 24-30-h.p. has six

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cylinders. All cars will be fitted with Silent Knight engines, and worm drive will be continued as standard practice.

Delage (LONDON AND PARISIAN MOTOR CO., LTD., 87, Davies Street, W.).

As this year, three types of Delage cars will be produced in 1913, a 12-h.p. and 14-h.p. 4-cyl. and a 15·9-h.p. 6-cyl. Four cars will be at Olympia on Stand No. 32, viz., one 15·9-h.p. chassis, a 15·9-h.p. torpedo, a 14-h.p. limousine (inside driven), and a 12-h.p. 2-seater.

Delaunay-Belleville Cars (49, Pall Mall, London, S.W.).

THE 25-h.p. car has a 4-cyl. engine of 100 by 140 mm. bore and stroke, and the price of the chassis with tyres is £540. This car has a sloping bonnet to harmonise with the stream-line effect of the open touring body with which it is fitted. The two other 1913 models shown at Olympia on Stand 66 are 6-cyl. models, one, rated at 26-h.p., having a bore and stroke of 85 by 130 mm., with a limousine landaulette body and a dynamo for the head, tail, and side-lights and interior illumination, and the other a 37-h.p. 6-cyl. with a torpedo limousine body very completely fitted up. Other 4-cyl. models for 1913 will be, 17-h.p. 85 mm. by 120 mm., 23-h.p. 98 mm. by 122 mm., 25-h.p. 100 mm. by 140 mm.; 6-cyl. 19-h.p. 72 mm. by 120 mm., 26-h.p. 85 mm. by 130 mm., 37-h.p. 100 mm. by 140 mm. Colonial models of the 4-cyl. 25-h.p. and of the 37-h.p. 6-cyl. models will also be made.

Dennis (DENNIS BROS., Guildford).

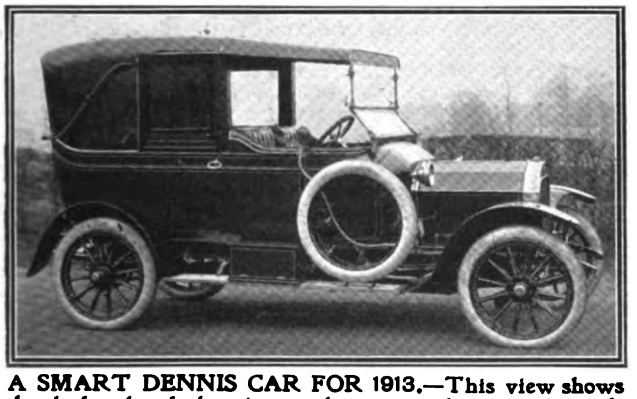
DENNIS cars for 1913 will be of two powers only, viz., 18-h.p. (4 cyls. 90 by 130 mm.), and 24-h.p. (4 cyls. 100 by 130 mm.). At Olympia, a 24-h.p. three-quarter landaulette, with a four-speed gear-box, and 24-h.p. cabriolet, with a folding body having a telescopic hood of special design, will be shown. Both will be fitted with detachable wire wheels. Another model will be an 18-h.p. car, somewhat different in design from previous Dennis cars, having a sloping bonnet and quite a new shape of radiator. The 18-h.p. Colonial model, which in the past has been very popular, has 40-in. steel wheels, giving a minimum clearance of 15 ins. All models will continue to have the well-known Dennis worm-drive.

Dodson Cars (DODSON MOTORS, LTD, 34, Old Bond Street, W.).

SEVERAL important alterations have been made in the Dodson models for 1913. There will be a 12–16-h.p. and a 20–30-h.p. as before, but both these types have been improved for the coming season, and a 4-speed gate change gear-box has been adopted as standard for both models. A new type of Dodson valveless has been introduced in the 19·9-h.p., which replaces the 25-h.p. valveless car that has been shown at the past four shows. The chassis conforms generally to the 15-h.p. model, which will also be shown on Stand No. 44, Olympia.

Enfield Cars (THE ENFIELD AUTOCAR CO., LTD., Sparkbrook, Birmingham).

IT is purposed to list three types only for 1913: 12-h.p. (76 mm. by 120 mm.); 16-h.p. (86 mm. by 130 mm.); 26-h.p. (100 mm. by 130 mm.). Of the three models, the 12-h.p. and



A SMART DENNIS CAR FOR 1913.—This view shows the body closed, but it can be converted at a moment's notice to an open touring car.

16-h.p. types have been current during the past season, and only detail alterations will be made. The 26-h.p. is a new type, which takes the place of the 20-h.p. of 1912, which it somewhat closely follows in general design. The valves are carried on opposite sides of the cylinders (in this respect differing from the 12-h.p. and 16-h.p. models). Four speeds and reverse are provided, with a bevel-drive to the rear-axle, and the chassis will be made in two lengths of wheelbase, 9 ft. 6 ins. and 10 ft. 6 ins. We understand that the Enfield Company have something new in the way of a light runabout.

Excelsior (H. M. HOBSON, LTD., 16, Pall Mall, S.W.).

As in the past season, two models only will be manufactured for 1913, a 4-cyl. 14–20-h.p. and a 6-cyl. 20–30-h.p., both, as before, having monobloc *desaxé* engines, the bore and stroke being 85 mm. by 130 mm. Enclosed valves, thermo-syphon cooling, and forced-feed lubrication are some of the features of these cars. The price of the 14–20-h.p. chassis with tyres £300, or with standard torpedo body, complete with wind-screen, double Cape-cart hood, acetylene head-lights, paraffin side-lamps, £375. Olympia, Stand 45.

Fafnir (G. STRAUS AND CO., LTD., 211, Upper Thames Street, E.C.)

THERE will be three types of Fafnir cars for 1913, a 11–16-h.p. 4-cyl., which can be had with either four or three-speed gear-box and in two lengths of chassis, a 12–20-h.p. and a 16–20-h.p. These cars, as well as a section of the power unit, will be at Olympia on Stand No. 98.



A 1913 model 20-h.p. Ford cabriolet by Offord and Sons, Ltd. A similar car will be shown at the Olympia Show.

Gobron (ARTHUR TURNER AND CO., LTD., 173, Piccadilly, W.).

THREE Gobron cars will be shown on Stand 43 at Olympia, a 15–20-h.p. (75 mm. by 150 mm.) torpedo, a 15–20-h.p. limousine and a 20–30-h.p. (90 mm. by 180 mm.) limousine. All will have the Gobron 4-cyl. 8-piston engine, a section of which will also be shown, and as in the other Gobron car for 1913—the 40-h.p. (114 mm. by 200 mm.)—the design remains practically unaltered.

G.R. (MANN AND OVERTONS, LTD., 10, Lower Grosvenor Place, S.W.).

A NEW car will be seen at Olympia on Stand No. 111, the "G.R.," manufactured for Messrs. Mann and Overtons by Messrs. Georges Richard and Co., Puteaux. The chassis that will be shown has a 4-cyl. monobloc engine 65 mm. by 110 mm., silent skew distribution gear, four-speed gear-box, and sells at £235 complete with wire wheels, detachable rims, and tyres. A two-seater, a four-seater torpedo and a coupé will also be shown.

Hurtu Cars (ARIEL AND GENERAL REPAIRS, LTD., Camberwell New Road, S.E.).

TWO chassis will be shown on Stand No. 117 at Olympia. Among alterations to the 10-h.p. model is the lengthening of the stroke of the engine to 110 mm., but the bore remains the same, 70 mm. The method of lubrication has been improved and the wheel-base has been increased to 8 ft. 4 ins. Price of chassis with tyres, £215. The other chassis that will be shown is a new model with a 14-h.p. engine, 75 mm. by 120 mm. bore and stroke. Chassis price with tyres, including three lamps and full kit of tools is £245.

Iris Cars (IRIS CARS, LTD., Cumberland Park, Willesden Junction, London, N.W.).

THE exhibit on Stand No. 90 will consist of their 15·9 4-cyl. models. Three distinct types of complete cars will be on view, as well as a chassis, one of them being the colonial model. The 25-h.p. and 35-h.p. cars which this firm also manufacture, will not undergo any change for the coming season.

Isotta Fraschini (MOTOR MANUFACTURING CO., AND ALFRED BURGESS, LTD., The Mall, Church End, Finchley, N.).

SIX models of Isotta Fraschini cars will be made for the 1913 season, the 12–15-h.p. (75 mm. by 130 mm.), the 16–20-h.p. (85 mm. by 130 mm.), the 25-h.p. (100 mm. by 140 mm.), the 30–35-h.p. (110 mm. by 160 mm.), the 27–80-h.p. (105 mm. by 180 mm.) and the 100-h.p. (130 mm. by 200 mm.). All models have four cylinders, the 12–15-h.p., 16–20-h.p., 20–25-h.p. and 27–80-h.p. are cast monobloc; the 30–35-h.p. and 100-h.p. being cast in pairs. All valves are on the same side and enclosed; the 27–80-h.p. and 100-h.p. have two inlet and two exhaust valves to each cylinder, actuated by cam-shafts in the cylinder heads. "I.F." cars will be shown at Olympia on Stand No. 119.

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Itala (ITALA AUTOMOBILES, LTD., 71, St. James' Street, S.W.).

THREE Itala cars, including a new model for 1913—a 25-h.p. rotary-valve chassis—will be on Stand No. 58 at Olympia. The other exhibits consist of a 35-h.p. limousine landaulette with rotary-valve engine, and a 14-20-h.p. (poppet valve) standard touring car. This latter model has been improved in several minor details.

Komnick Cars (MESSRS. DARBY AND WEBER, LTD., 118, Great Portland Street, W.).

THIS is a new comer to Great Britain of which six models are listed as follows :—12-14-h.p., 70 mm. by 100 mm. (£260); 14-16-h.p., 75 mm. by 118 mm., 16-20-h.p., 80 mm. by 130 mm. (£400); 20-30-h.p., 90 mm. by 140 mm. (£475); 30-40-h.p., 100 mm. by 140 mm. (£650); and 30-70-h.p., 105 mm. by 160 mm. (£675). Price given is for chassis with tyres. The 14-16-h.p. is a new model for 1913, and quite different in design from the others which are similar to those manufactured this year.

K.R.I.T. (K.R.I.T. MOTOR CAR CO., LTD., 127, Long Acre, W.C.).

THE 15-20-h.p. K.R.I.T. will still be the only model manufactured for 1913, although three styles of bodywork will be obtainable — a 5-seater, a 2-seater de Luxe (both selling at 200 guineas, complete), and a delivery van. The chassis contains several detail improvements, and the price of it has been lowered to £180.

M.A.F. Cars (DARBY AND WEBER, of 118, Great Portland Street, London, W.).

THE agents for M.A.F. cars are marketing two models for the coming season, and each is supplied in three different lengths of chassis. The 10-12-h.p. model has a bore and stroke of 68 mm. by 90 mm., and is priced at £190, while the 12-14-h.p., which has a bore and stroke of 72 mm. by 96 mm. costs £210.

Marathon (ARTHUR TURNER AND CO., LTD., 173, Piccadilly, W.).

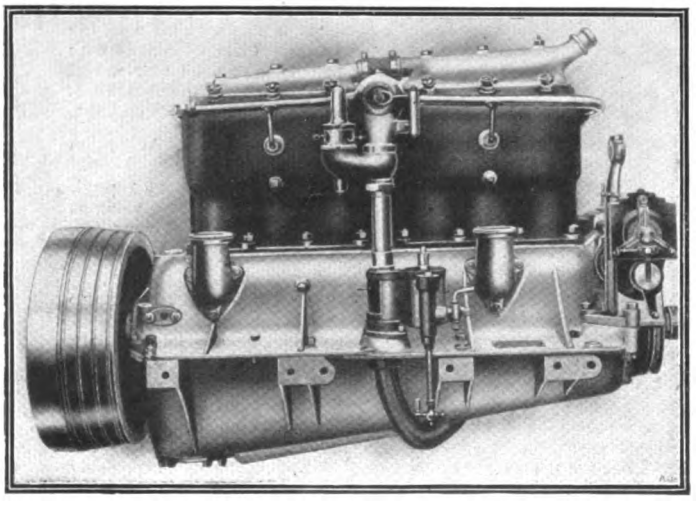
A NEW car, known as the Marathon, will be shown at Olympia on Stand No. 43. This car is made in two powers—20-25-h.p. 4-cyl. (3½ ins. by 4½ ins.) and 30-35-h.p. 4-cyl. (4¼ ins. by 4½ ins.). Four models will be shown as follows :—20-22-h.p. two-seater, price complete with screen, hood, detachable rims and accessories, £210; 20-25-h.p. five-seater torpedo, complete, £225; 20-25-h.p. coupé, complete, £250; and 30-35-h.p. five-seater, complete, £310.

Martini (C. BERTRAND, 102-4, Long Acre, W.C.).

MARTINI cars for 1913 will be in the hands of Mr. C. Bertrand, who has recently taken over the agency. Two new and interesting models will be shown at Olympia on Stand No. 24, viz., a 12-16-h.p. polished chassis, in which is embodied a special system of lubrication and petrol feed (air pump), and a 25-35-h.p. four-seater torpedo fitted with the "Knight" engine. There will also be a 16-24-h.p. four-seater torpedo.

Maudslay (MAUDSLAY MOTOR CO., LTD., Parkside, Coventry).

NO alteration will be made to the Maudslay 1913 programme, the 17-h.p. 4-cyl. (90 mm. by 130 mm.) and the 27-h.p. 6-cyl. (90 mm. by 130 mm.) remaining very much the same. Four cars will be shown at Olympia on Stand No. 55—a 17-h.p. chassis, a 17-h.p. ¾-landaulette, a ¾-cabriolet and a 27-h.p. torpedo phaeton.



The 26-h.p. 6-cyl. Delaunay-Belleville engine for 1913, showing the carburettor side.

Minerva Cars (MINERVA MOTORS, LTD., of 40, Holborn Viaduct, E.C.).

A NEW 14-h.p. model with a bore and stroke of 75 mm. by 120 mm., figures on the firm's programme for 1913, and the 16-h.p. car of last year will be superseded by an 18-h.p. with 90 mm. by 130 mm. bore and stroke. All types will be fitted with Silent Knight 4-cyl. engines, and the dimensions of the 26-h.p. engine are 100 mm. by 140 mm., and of the 38-h.p. 124 mm. by 150 mm.

Napier Cars (S. F. EDGE, LTD., 14, New Burlington Street, W.).

SEVEN different models of Napier cars are being offered for 1913. Three are 6-cyl. models of 59·9-h.p., 45-h.p. and 30-h.p. respectively, while the others are the 4-cyl. 15-h.p., which can be had as a Model de Luxe, an extra strong Colonial model, a standard chassis with an 8 ft. 10 in. wheel-base, and a chassis with the same wheel-base for colonial use. On all 1913 models excepting the "standard model" Rudge-Whitworth detachable wire wheels will be included in the price of the chassis. Alterations for 1913 are mainly detail improvements; the 45-h.p. and the 30-h.p. have increased wheel-base, and the latter model will have worm drive to the back axle.

Nazzaro (MOTOR SUPPLY CO., LTD., 136, Piccadilly, W.).

THE Nazzaro will be at Olympia for the first time on Stand No. 94. One model only will be produced, a 20-30-h.p. with 4-cyl. (100 mm. by 140 mm.) monobloc engine, bi-jet carburettor, multidisc clutch, four-speed gear-box and live axle. Petrol is fed by air pressure maintained by a pump worked off the cam-shaft. In addition to a chassis, there will be shown a ¾-landaulette, a torpedo and a cabriolet.

Overland (ANGLO-AMERICAN MOTOR CO., LTD., 19-21, Heddon Street, Regent Street, W.).

THE Overland exhibits at Olympia, Stand No. 75, will be five in number, as follows :—A 20-25-h.p. 4-cyl. (4 ins. by 4½ ins.) polished chassis, a 20-25-h.p. two-seater torpedo, a 20-25-h.p. five-seater touring, both selling at £235 complete, a 20-25-h.p. four-seater torpedo (£240 complete) and a 25-30-h.p. five-seater touring.

Peugeot (PEUGEOT (ENGLAND), LTD., 10, Brompton Road, London, S.W.).

AMONG the Peugeot cars for 1913 will be one with a 40-50-h.p. 4-cyl. (120 mm. by 200 mm.) engine, which will be fitted with a combination of sleeve and piston valve. The other models will include the "Baby," a small two-seater with 4-cyl. monobloc engine (55 mm. by 90 mm.), leather cone-clutch, two speeds, and the Peugeot system of transmission, selling complete at £160; 12-h.p. the Lion Peugeot, with 4-cyl. (68 mm. by 130 mm.) "V" engine, in the chassis of which several alterations have been made. Of the other 4-cyl. models, the 10-14-h.p., the 16-20-h.p. and the 17-20-h.p. remain unaltered, but the 12-15-h.p. will have a re-designed engine, steering-box and steering-gear, and the 22-30-h.p. will also undergo some alterations. New models are the 14-18-h.p., with a 4-cyl. (80 mm. by 140 mm.) monobloc Desaxe engine, and the 18-24-h.p., the dimensions of the 4-cyl. engine of which are 95 mm. by 160 mm.

Phœnix (PHŒNIX MOTORS, LTD., 114, Great Portland Street, W.).

AN entirely new model will be shown at Olympia on Stand No. 25 by Phœnix Motors, Ltd., as well as the two existing types—the 8-10-h.p. and the 12·9-h.p. with two-cylinder engines—90 mm. by 100 mm. and 102 mm. by 115 mm. respectively. The new model, however, has a four-cylinder *en bloc* engine, 69 mm. bore and 100 mm. stroke. A three-speed gate operated gear-box is fitted and a worm driven rear axle. The wheel base is 8 ft., and detachable wheels with 750 by 85 Dunlop tyres are fitted. Price complete, including hood, screen, lamps, horn, spare wheel, &c., £250. The smaller cars will continue to have the Phœnix central chain drive.

R.M.C. (SEABROOK BROS., 57, Great Eastern Street, E.C.).

VARIOUS models of the 18-20-h.p. 4-cyl. (95 mm. by 114 mm.) Seabrook R.M.C. underslung car will be at Olympia on Stand 110, including the standard 2-seater (£225) and 4-seater (£250), a sporting 2-seater with pointed radiator (£325), and a 3-seater coupé (£315). The following alterations have been made for 1913: Carburettor now on right-hand side, opposite valves; plunger pump instead of rotary pump for lubrication. The transmission has also been improved, and the wheel-base increased.

Riley (RILEY (COVENTRY) LTD., Coventry).

THE 10-h.p. (96 mm. by 96 mm.) and 12-18-h.p. (102 mm. by 127 mm.) Riley cars still hold good for 1913, but several detail improvements have been made to both chassis. The 2-cyl. 90° V engines will remain the principal feature in design. Three cars of the 12-18-h.p. type, including one chassis, and a 10-h.p. two-seater will be on Stand 21 at Olympia.

Rover (ROVER CO., LTD., Coventry).

ONLY two Rover chassis will be manufactured for 1913, the

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12-h.p. 4-cyl. (75 mm. by 130 mm.) and the 18-h.p. 4-cyl. (90 mm. by 130 mm.). The 6-h.p. and 8-h.p single-cylinder and "Knight" models will no longer be made. Structural features of the 12-h.p. and 18-h.p. models remain entirely unchanged for the coming season, but improvements have been made to the springing and finish. Rover cars will be shown at Olympia on Stand No. 91.

Singer Cars (SINGER MOTOR CO., LTD., Coventry)

ARE marketing five models for 1913, including a cycle car. Last year's 15-h.p. and 20-h.p. short wheel-base models will remain unaltered, and this also applies to the 20-h.p. long wheel-base car, except that the wheel-base has been increased to 11 ft. A new car will be made for this year, viz., the 14-h.p., which has an engine of 78 mm. by 125 mm. bore and stroke, and four-speed gear-box. The chassis price, including tyres, spare wheel (without tyre), and tools is to be £315.

S.P.A. (THOS. GREEN AND SON, LTD., Smithfield Ironworks, Leeds).

THE 1913 range of S.P.A. chassis will include four models, all having 4-cyl. engines, and, with the exception of the first of the following, each is supplied in two lengths of wheel-base:—12–15-h.p. (70 mm. by 120 mm.); 16–20-h.p. (85 mm. by 120 mm.); 25–30-h.p. (100 mm. by 140 mm.); 50-h.p. (110 mm. by 200 mm.).

Spyker (SPYKER CARS, 97–98, Long Acre, W.C.).

AN entirely new Spyker car will be at Olympia (Stand 15), *i.e.*, a 14-h.p. 4-cyl. (80 mm. by 120 mm.), four-speed gear-box and cardan drive. There will also be a new 20-h.p. 4-cyl. (90 mm. by 135 mm.). The following 1912 models will be retained during the coming season:—12-h.p. 4-cyl. (72 mm. by 110 mm.), 25-h.p. 4-cyl. (106 mm. by 130 mm.), 40-h.p. 4-cyl. (120 mm. by 160 mm.). All engines will have the Spyker patent worm-driven valve-gear.

Stanley Steam Cars (Victoria Works, Ashtead, Surrey).

JUDGING by the numbers met on the road Stanley Steam Cars have evidently become much more popular since last November. Doubtless their popularity will increase now that the steam generator system includes a thermostat for controlling the fire, and that the control of the pumps has been simplified. At Olympia a 10-h.p. chassis (price £230), will be on view as well as a car of similar power with two-seater torpedo body (£295), and 20-h.p. coupe, price £495 complete.

Thornycroft (JOHN I. THORNYCROFT AND CO., LTD., Caxton House, Westminster, S.W.).

ONE model only will continue to be the Thornycroft policy for 1913, and this will be the 18-h.p. 4-cyl. (4 ins. by 4½ ins.) which has been altered only in details. The exhibit at Olympia, Stand No. 71, will consist of two five-seater torpedo cars, which, with Kopalapso hood, screen, Rudge-Whitworth wheels and accessories, are priced at £580, and a cabriolet to seat six, price complete £650.

Vauxhall (VAUXHALL MOTORS, LTD., 180–182, Great Portland Street, W.).

ALL the Vauxhall cars for 1913 will be new models and four in number, viz., 16–20-h.p. 4-cyl. (90 mm. by 120 mm.) chassis, £395; 25-h.p. 4-cyl. (95 mm. by 140 mm.)—which replaces the 20-h.p. of 1912—chassis, £465; 25-h.p. "Prince Henry" chassis, £495; and the 35-h.p. "Six" (95 mm. by 120 mm.) chassis, £625. All will have 4-speed gear-boxes. Three of the 25-h.p., including a "Prince Henry," will be at Olympia, and a 35-h.p. (6-cyl.) cabriolet.

Waverley Light Cars (115, Great Portland Street, W.).

EXCEPT for one or two minor details, no alterations have been made in the design of the Waverley cars for 1913. Both models, the 10–12-h.p. with 4-cyl. engines 65 by 130 mm., and the 12–14-h.p. 4-cyl. 75 by 120 mm. will be on Stand No. 125 at Olympia. Standard models will be listed at £225 for 10–12-h.p. two-seater and £250 complete for the 12–14-h.p. two-seater. The special model for 1913 will be a smart two-seater with torpedo body at £275 complete.

Zedel (C. BERTRAND, 102–4, Long Acre, W.C.).

THE Zedel exhibit at Olympia, Stand No. 23, will consist of five models of the 14–20-h.p. and 25–30-h.p., these two powers still being the programme for 1913—a 14–20-h.p. chassis, a 14–20-h.p. torpedo, specially designed to take two to five passengers, a 14–20-h.p. cabriolet, steering inside, with three-quarter windows giving full view (this body can be opened or closed from the inside), a 14–20-h.p. four-seater torpedo, with convex scuttle, and the 25–30-h.p. model fitted with a cabriolet body seating seven.

Speed Limits During Army Manœuvres.

ANOTHER instance of the way in which the selfish action of a few thoughtless drivers may re-act upon the whole motoring community was mentioned in the House of Commons recently, when, in reply to Capt. Faber, Col. Seely, the Minister of War, said that cases occurred at the late manœuvres of inconvenience and discomfort being caused to the troops by motor cars passing them at a high rate of speed, and covering them with dust. The existing Manœuvre Acts did not enable the authorities to impose any speed limits on motor cars, and it might be necessary, for this and other reasons, in future to enforce more rigidly the powers for closing roads at manœuvres.



A gratifying compliment was shown the Daimler Co. at Coventry last Saturday week, when a visit was paid them by the Deputy-Mayor and other members of the City Council of Vienna to inspect the remarkable organisation and work in the Daimler factory, the Daimler omnibus particularly attracting their attention. Our photograph shows the group upon the occasion. Mr. E. Manville and Mr. Percy Martin (both in soft hats) will be noticed with the guests.

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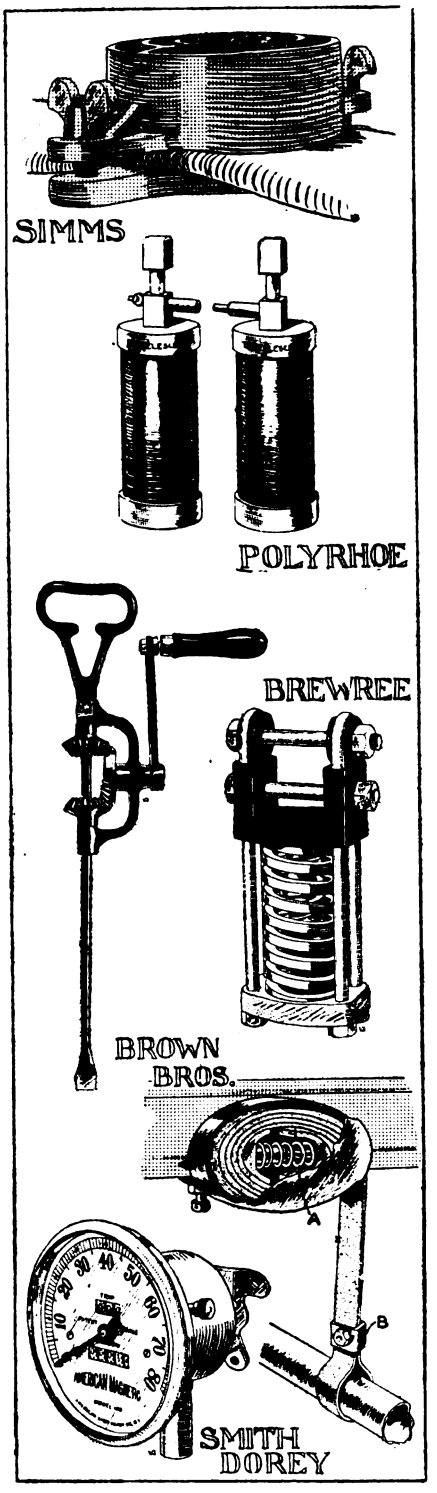
SOME ACCESSORIES TO SEE AT OLYMPIA.

THE Simms Magneto Co., Ltd. (Stand 293), will show a very interesting new accessory, known as the "Welbeck" Vulcaniser, which is one of the simplest articles of its class ever produced. So simple is it that there will be plenty who will condemn it without trial. We have tried it on two occasions, however, and both attempts were remarkably successful. The method of operation is as follows:—Clean the puncture in the ordinary way, apply the prepared rubber, and placing the upper receptacle on top of the patch, screw down the wing nuts until a considerable pressure is applied. With the set is supplied a small tin, which should be twice filled with petrol and poured into the "burner." The spirit should then be lit and allowed to burn itself out, which takes about 20 mins. If the apparatus is then allowed to cool off naturally and the tyre removed, it will be found that, even at the first attempt, a good repair has been effected. The price of this set is 15*s.*, at which it is certainly a sound investment.

The Telecso Shock Absorber, which will be seen on many stands at the Show, has been brought out in this country by Polyrhoe Carburettors, Ltd., of 144, Great Portland Street. It is notable for the fact that in addition to the usual coil spring inside the casing, there is also a piston and a quantity of oil, the action of which is to damp the action of the spring, and, while leaving it still free to absorb shocks quickly, to restrain the return action and put a curb on any tendency towards bounce. The piston is fitted with a non-return valve, which allows the oil to run through it to the bottom of the casing when the spring is compressed, but closes down on the downwards stroke, compelling the oil to return to the upper side of the piston through a series of small holes.

What a trouble valves are, to be sure, and how little trouble people will take to keep them in order. Here is a valve grinder known as the "Warrow" marketed by Messrs. Brown Bros. of Great Eastern Street, and which will be shown on their Stand 244. It has been designed to fill a want for a cheap and handy grinder, having a reciprocating motion, and capable in practised hands of doing as good a job as the much more expensive tools of the same class. One of the most widely held theories on grinding valves is that they should be reciprocated through as large an angle as possible, while at the same time being slowly revolved in one or other direction. The object in view is to prevent scoring or pitting of the seating or of the valve head through minute particles of the cutting material remaining relatively stationary between the surfaces. With a little practice, this action can be brought about easily with the Warrow, either by giving the topmost handle a slight twist occasionally with the left hand, or, if it be possible, by walking around the valve under operation, thus turning the whole instrument round in its place.

Still another type of shock absorber is the Brewree, sold by Messrs. Brew and Reeves, of 330, Kennington Road, S.E. In this type there are two concentric springs, the outer one of which does the actual springing of the net weight of the car, while the inner spring compensates for any extra load, such as passengers or luggage. This double springing also brings about automatically a damping effect on periodic vibration, because the springs have vastly different periods, and therefore quickly return to their normal position, where they are best able to take care of the next shock.



The number of shock absorbers and auxiliary springs that have been brought out during the past year includes none more interesting than the Gabriel "Snubber," which hails from the other side of the Atlantic, where motoring conditions are so bad as a rule, that some form of shock absorber is included in the standard price of almost every car, frequently being fitted to the front wheels as well as the back. There are friction devices, and many kinds of auxiliary spring attachments, but they are nearly all so carelessly designed that while they certainly do help to save the springs from getting broken they also help those same springs to fling the occupants out of the car on the rebound. The fact that quite a number of American cars are fitted with rubber buffers to prevent the axle striking the frame is sufficient evidence of the strength of the compression the springs are subjected to, and consequently it is all the more important that the rebound should be suitably restrained.

In the Gabriel Snubber, a length of Balata belting is wound round a divided egg-shaped metal shell, containing a strong spring in compression. One of the properties of this particular belting is that when loose it will slip quite readily, while under tension the friction of one surface on the other causes a considerable drag to take place. The "Snubber" is anchored to the frame, and the loose end of the belt is attached to the axle, so that when the springs are compressed the belt is loosened. The spring inside the wound belt then pushes the two parts of the divided shell apart, taking up the slack in the belt. This action takes place very quickly, and there is just sufficient resistance in the belt to prevent any jerk. On the belt being drawn tight, it begins to compress the shell again, the upward movement of the frame having to take place against two forces—that of the enclosed spring in itself, and also that of the friction of the belt on the layers underneath. In action, we can testify that the "Snubber" justifies all the claims made for it. It is interesting to note that "Gabriels" were fitted to the 11·9-h.p. Arrol-Johnston car which last week broke, amongst others, its own six-hours' endurance record at Brooklands. We should think that for racing the "Snubber" has a great future, owing to its very light weight as compared to many of the well-known shock absorbers, and its ease of fitting.

Sphinx plugs in profusion will be found on quite a number of cars on the ground floor, and several accessory firms will be showing two very useful articles turned out by this firm in the form of a plug-cleaner, which when filled with petrol and the plug screwed into the top, has only to be shaken to wash all carbon from the points, and a neat double purpose acetylene lamp connection, especially suitable for motor bicycles and side-cars.

A new magnetic speedometer of rather exceptional interest is the "American Magnetic," made by the Ever-Ready Co., and marketed in this country by Messrs. Smith and Dorey, of Great Marlborough Street, W., who will be exhibiting it on Messrs. Howes and Burley's stand, No. 217. These instruments operate on the magnetic principle, and, as with most speedometers of this type, claim is made for absolute steadiness of the hand at all speeds. From the little we have been able to see of the instrument in action, we believe this claim to be fully justified. Readers will probably have noted, from the illustration published, an unusual point in the calibration of the dial. This is that the readings commence at zero instead of at 5 or 10 miles an hour, as is usual; and it is a fact that this speedometer actually *will* record accurately and without vibration at speeds as low as 2 miles an hour.

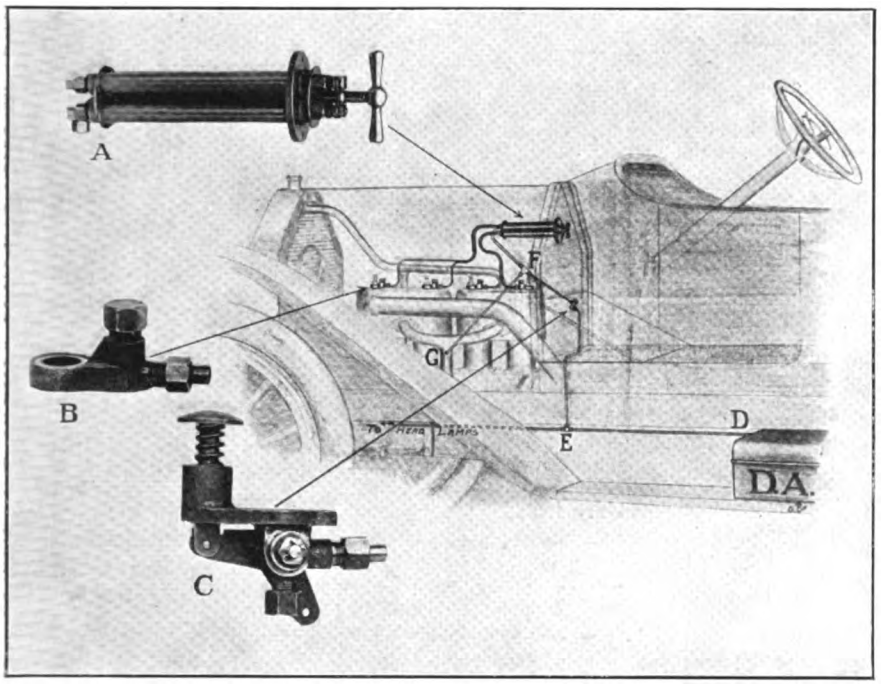
The magnets used have great strength, are mounted on ball-bearings, and are very light in weight. Owing to their power, stronger springs may be used to control the recording hand, the great steadiness of which is attributable partly to this latter combination

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and partly to the fact that the magnet runs at four times the shaft speed.

As regards the drive, the shaft is made up of a sixteen strand wire cable, each four strands being coiled in reverse direction. This construction provides an absolutely solid drive, and the absence of the innumerable small rivets, with their attendant wear and tear, necessary in a link drive, makes for a marked decrease in back-lash. The dial is clear, and the figures are plainly marked from nought to 80 miles an hour. The price of the car model, as illustrated, is five guineas complete, and a similar but smaller model for motor cycles is listed at £3 10s.

On Stand 272 the Acetylene Illuminating Co. will exhibit a complete novelty to this



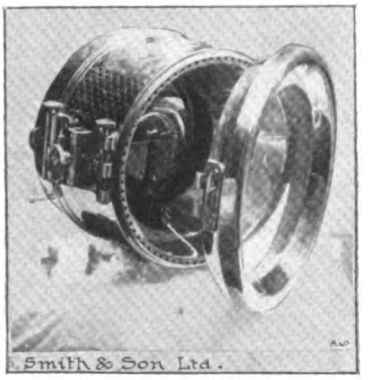
THE D.A. SELF-STARTER.—A=Hand-operated distributor on dash. B=Acetylene inlet-valve in cylinder-head. C=Foot-operated admission-valve between D.A. cylinder and distributor.

ountry in the shape of an acetylene self-tarter, designed to be run in conjunction with their well-known dissolved acetylene lighting outfit. The illustrations we publish will give some idea of its operation, so that a short description will suffice. The standard D.A. cylinder is carried in the usual way on the running board or elsewhere, and in addition to being connected to the lamps, has a length of tubing leading to a four or six-way distributor on the dash. From this member, acetylene gas, mixed with a proper proportion of air, is led direct to whichever cylinder is prepared for its firing stroke, and on switching on the resultant explosion is sufficient to start the engine revolving. While pressing home the advantage of self-starters in general, this company claim two extra points for their system, these being that it is extremely easily fitted to existing cars not designed for self-starters, and that each charge of gas carries with it a small quantity of acetone in solution, which has the effect of cleaning and freeing the cylinders and pistons. It should be remembered that acetone is the substance used in the D.A. tank, owing to its property of dissolving many times its own volume of acetylene gas.

Messrs. Brown Bros.' Stand 244, will contain, as usual, such an assortment of accessories that it is difficult to draw special attention to any single one. However, among the most interesting will be the Brolt dynamo lighting set in operation, Raybestos—the famous brake and clutch lining—and the Autoclipse lamps.

Coan's castings in aluminium, in the shape of crankcases, gear-boxes, and number plates will be much in evidence, the latter articles, although to a certain extent a minor detail, add considerably to the appearance of a car, and are to be found as standard fittings on a large number of the best class cars.

In addition to being found in the gallery, Rudge-Whitworth detachable wheels in their several patterns, offer plenty of opportunities for examination on the ground floor. No one should miss the new type of locking device to be seen on these wheels. It is quite one of the most ingenious devices in the whole Show, and withal, one of the simplest.



Oylers, Ltd., on Stand 196, will show five or six types of Skew tyres, including three new varieties, the Cavendish accumulators and lighting sets, and various accessories connected with tyres. A pressure gauge which retains the recording mechanism in place until intentionally released by hand will be made a speciality.

Amongst Messrs. S. Smith and Son's exhibits will be found their new carburettor, a selection of models of their famous "Perfect" Speedometers, including the new runabout type, and also the Goldenlyte lamps, with their fog penetrating properties. Amongst general accessories, this firm also specialises on badges and mascots of all descriptions that can be made to the order of clubs or societies. Messrs. Smith's stand is No. 324.

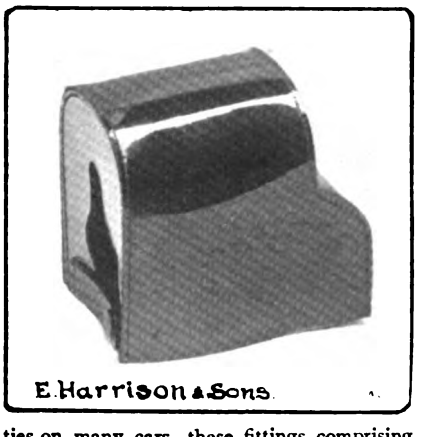
Stewart Precision carburettors will be found fitted to the Clement Talbot cars on stand 69 downstairs, and also to the Phoenix cars. Messrs. Brown Bros., on their stand 244, will exhibit the Stewart-Morris paraffin carburettor that recently went through a 2,000 mile trial on the Pathfinder car so successfully. In the course of this trial, which was of a protracted nature, the car ran all the way on paraffin, petrol to the extent of 1¾ gals. only being used for starting up the engine from cold.

The Warland Dual Rim Co., on Stand 194, (Annexe), will show the latest thing in double



purpose rims, fitted to wood, wire and steel wheels. As readers are probably aware, the great point about the Warland rim is that after the rim has been removed from the wheel, a further operation makes it possible to remove the tyre from the rim by hand and without stretching the bead at all.

Messrs. E. Harrison and Sons will have some of their well-known "Rappa" speciali-



ties on many cars, these fittings comprising leather steering joint covers, starting handle straps and covers, tool-kit cases, and a very neat limp leather lamp cover, which can be made to order to enclose any lamp.

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee, Messrs. Tyler, Rawson, Emmerson, Tipper, Holland No. 1, Shaw, Holland No. 2 and Moores.

The minutes of the previous meeting were read and confirmed.

Parliamentary Campaign.

Mr. Cates reported having interviewed the Hon. Arthur Stanley in respect to future procedure regarding the N.S.C. programme. Parliament was at present engaged with business which made it impossible to do anything during this session, but at the commencement of the next session the N.S.C. demands as regards the automatic lapsing of endorsements will be voiced.

Organisation in Provincial Towns.

Mr. Cates reported progress in relation to the numerous requests for additional advantages in the provinces. An arrangement was being considered whereby by working in co-operation with R.A.C. Branches country members would have the advantage of the R.A.C. local employment bureau. The committee debated the question at some length, and it was agreed to call a meeting of representatives from the R.A.C. and N.S.C. in order to consummate the scheme.

Correspondence.

Letters were read from the Hon. Rupert Guinness, President; Mr. S. F. Edge, Vice-President, the Society of Motor Manufacturers and Traders, Messrs. A. Warren, F. Thrussell, and E. Simester.

Legal Department.

The secretary asked that his action be endorsed in acting under the power given him in cases of urgency. Member No. 47 had been summoned to answer the charge of having his extreme right-hand light extinguished. The case was down for Monday, the 28th. The committee endorsed the secretary's action.

Open Meeting.

The quarterly open meeting of the committee will be held on Monday, November 11th.

Clubroom.

The social arranged for our Wimbledon friends was very successful. The Wimbledon folk turned up in goodly numbers, and the N.S.C. members gave them a hearty welcome. Everyone felt at home, with the result that a most enjoyable evening was spent, the games being keenly contested, and full justice being done to the refreshment department. The committee are more than pleased with their first friendly social.

Result of Games Played.

Billiards—

N.S.C.				Wimbledon.	
Gatling	100	*v.*	Swan	93
Handford	41	,,	Hudnott	100
Holland	100	,,	Francis	43
Rawson	100	,,	Graham	72
Darmaros	88	,,	Moore	100
Holmes	100	,,	Oates	72
Cates	100	,,	A. Worthington ...	51
Emmerson... ...	84	,,	Ives...	100
Withill	100	,,	C. Worthington ...	66
Pryde	100	,,	P. Worthington ...	85
	913			782
N.S.C. ... 7 games.			Wimbledon... 3 games.	

Championship Contest.—Holland (N.S.C.), 250; A. Worthington (Wimbledon), 228. This game was keenly contested, and created no small amount of interest, both players being well applauded.

Bagatelle—N.S.C. scored 954, winning four games, against Wimbledon 733, two games.

Cards.

Bridge—

N.S.C.		Wimbledon.	
Cates and Emmerson ...	0	Oates and Rayment	2
Holland and Kahn ...	1	Swan and Rayment	2
Allison and Kahn ...	0	Swan and Rayment	2
Cribbage—			
Withill and Sutton ...	2	C. Worthington and Hudnott	1
A. Holmes and R. Holmes	0	Williams and Francis ...	2
Cutter and Bourn ...	1	Moore and Stambridge ...	2
	3		5

Whist—N.S.C. winning by 19 points to 16 in ten games.

Draughts—
Cutter (N.S.C.) ... ... 2 Stambridge (Wimbledon) ... 0

Total Result—N.S.C., 5 events. Wimbledon, 2.

The following letter has been received from Mr. Percy Oates:—

"Dear Mr. Sexton,—I am writing to express our heartiest thanks for the most enjoyable evening we had with you last night. All our men express themselves as having had a thoroughly good time, and it gives me great pleasure to place on record our appreciation of your kindness. Again thanking you and wishing you every success.

"Yours faithfully,
"PERCY OATES."

Review of Events.

Parliament, with its hands full, cannot do anything for chauffeurs this session. Mr. McKenna, the Home Secretary, has expressed his regret that there is no by-law whereby he could accede to the request of our President and Vice-President as regards the automatic lapsing of endorsements upon licences. The only course, therefore, seeing that the Government cannot spare time to consider the unjust portions of the Motor Car Act, is to promote a private bill, and Mr. Arthur Stanley, our Vice-President, wishes me to inform members that it is his intention to take the first opportunity to give notice of a private bill on behalf of the Society, providing the joint conference which is being held cannot find some other means whereby to achieve the desired end. This is as it should be. Mr. Stanley also points out the necessity for members to work with the object of increasing the membership. Numbers speak volumes, and the greater the backing, the greater the chances of success.

The visit of our friends from Wimbledon has put new life into those who attended. The N.S.C. members did well to win by 5 to 2. We expected to lose at billiards, but our boys were out to win. The Wimbledon men mean to make a great effort to win the Shell Inter-Club Cup, a sketch of which was on the notice board. At bridge the N.S.C. was outplayed. Personally I know nothing about the game, but I am told that to win you have to be exceedingly artful. Now Wimbledon chauffeurs are noted for this gift by nature, hence the win. At cribbage they came out on top. Cribbing was never a plank in the N.S.C. programme. A glance at the dictionary discloses that "crib" is to "purloin," hence again the win. They stole a march on us. I have a grievance against Williams and C. Worthington for the manner in which they popped it on their uncle and Shaw at whist; absolutely gave us no earthly, winning every game. Then not content with this, they ask if I will referee for their football team.

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Now I have acted as umpire during the last season for the Wimbledon Garage Club, and have made many genuine friends. To referee at football is another question. However, a friend of mine in the Life Guards has offered to lend me his breast-plate. Mr. Oates will no doubt lend me a pair of leggings, then with the aid of some substantial knee-caps I may be induced to take the field; but I give notice that the first time I swallow the whistle the job is off. (Wimbledon, please note.)

The committee wish me to tender to Messrs. J. Johnson, N. Darmaros, and W. Bradley their sincere thanks for services rendered during the evening in the refreshment department.

Accepted for Membership.

Henry Heald, London, S.W.
Ernest W. Bacon, Purfleet
Walter Yardley, London, N.
Thomas Lydiatt, London, W.
Thomas H. Whittaker, London, N.W.

Applications for Membership.

Walter E. Herbert, London, S.W.
Robert Rolfe, Chislehurst
John Perry, London, S.E.
Albert E. Bird, Woking
E. G. Bramble, London, S.W.
F. McDonald, London, S.W.
W. F. Lang, East Molesey
R. H. Went, Wolverhampton
Arthur E. Worthington, Cobham
Robert Jones, London, S.W.
Frederick G. Styles, London, S.W.
James W. Austin, London, S.W.
George Shiel, London, N.W.
W. E. Burridge, London, S.E.
Reginald Sebright, Bath

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally. ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2s. 6d. Subsequent subscriptions, 2s. per month. Payable in advance on the 1st of each month. Badges, 1s. 1d., post free. Members may pay yearly 21s., or half-yearly 10s. 6d., payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2s. 6d. (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed
Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Members are requested to observe the ten-mile limits at Hatfield and Welwyn. Control likely to be working between Little Heath and Hatfield. Under repair west of Long Thorpe, roller at work, alternative route, continue on main road to Alwalton and enter Peterborough through Woodstone.

LANCASHIRE.—Members are requested to slow through Garstang 10¾ miles north of Preston.

Blackpool–Poulton Road.—Members are requested to drive slowly through Poulton-le-Fylde and district.

YORKSHIRE.—*Guisborough–Redcar Road.*—Closed owing to the re-construction of Tocketts Bridge two miles from Guisborough; alternative route *via* Marske, and turn to right into Skelton Ellers.

LEEDS DISTRICT.—Controls are still in hand at Moortown, Leeds; Thwaite Gate, Hunslet; through the ten-mile limits in Burley-in-Wharfedale and in Ilkley, care necessary in city and suburbs.

EAST.

NORWICH.—*Norwich–Aylsham Road.*—Extreme care is necessary when crossing the temporary bridges at St. Faiths, Hevingham and Ingworth, as they are narrow and only suitable for light traffic.

Romford–Mountnessing Road.—Control likely to be working in the ten-mile limit in Brook Street, Brentwood.

SOUTH.

BATH ROAD.—At Maidenhead the High Street from Bear Hotel to King Street will be closed, road under repair; alternative route, St. Ives Road, York Road, and King Street. Members are requested to slow through Slough. Rollers working at Keynsham; between Chippenham and Cross Keys; Navvy Bridge, Chippenham.

LONDON DISTRICT.—On account of timing operations special care is necessary at Regent's Park Road, N.W.; near Church End Station, Finchley; Golder's Green; between Redcliffe Gardens and The Boltons, Earl's Court Road, S.W.; Victoria Embankment; Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; Croydon; Purley; between Wimbledon and Ewell; Hounslow–Staines; Hounslow–Colnbrook; Putney Hill; Harlesden; Maida Vale; Highgate; Lewisham; Sudbury to Harrow.

OXFORD.—Controls likely to be working at the following places: High Street, St. Aldates Street, New Road, and Botley Road, in the ten-mile limits. Controls are also in Woodstock Road, Southmoor Road, and the main Oxford-London road, near Wheatley.

SOUTHAMPTON ROAD.—Controls are working at night through Egham. Repairs in hand on the Egham-Windsor road, between Sunningdale and Bagshot.

SOUTHAMPTON DISTRICT.—Tramway track still under repair in Shirley Road, also at the top of Four Post Hill.

SURREY.—*Portsmouth Road.*—Flashlight controls are working between Kingston and Esher.

Eastbourne Road.—Special care is advisable as a control may be working near Kenley Police Station and the Gas Works, Whyteleafe.

WEST.

DEVON.—*Plymouth–Moretonhampstead Road*—Timing likely to be in hand at Two Bridges.

CARDIFF DISTRICT.—Special caution is needed in Cathedral Road from Cowbridge Road to tram terminus, on the Cowbridge–Swansea road at Canton, at Rumney on the Newport road, Leckwith Common on the Penarth road; also at Dinas Powis and Eastbrooke on the Cardiff–Penarth–Barry road, and from Commercial Street to Waterloo Road on the Cardiff–Newport road.

Cheltenham–Oxford Road.—Special caution is necessary at Andoversford as bridging operations are in hand, and also there is a nasty bend in the road.

BRISTOL–BRIDGWATER ROAD.—Controls are likely to be working near Sidcot and Langford, care is necessary.

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The Motor 'Bus Problem.

WHAT with one conference and another the motor 'bus problem is being talked to death. At a meeting of the Metropolitan Borough Standing Joint Committee held on Monday at the Guildhall, a set of resolutions, somewhat similar in tenor to those published at Richmond the other day, were carried unanimously after a protracted discussion. A similar set of resolutions were down for discussion at a conference of extra Metropolitan authorities on Thursday last.

The Executive Committee of what might be termed the Richmond Conference, representing local authorities on the western side of London, decided at a meeting on the 22nd inst. to send a deputation to the Local Government Board and the Treasury with a view to obtaining a direct contribution from the petrol tax for the upkeep of the roads, and to obtain power for the local authorities to define routes along which motor 'buses should run. The question of joining in other conferences on the same subject was discussed, but it was decided to continue to take independent action.

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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

95.

EXPERIENCE WITH KLAXON HORN.—The following experience with a Klaxon horn may be of interest to chauffeurs generally. The horn in question was fitted to the car of a friend of mine, and was worked by a 12-volt accumulator. He complained to me of the very unsatisfactory working of the horn, which according to his statements varied in tone considerably. Sometimes it would be all right, on other occasions it would give only intermittent sounds, and frequently it refused to work at all. He made various adjustments, carefully examined all the wiring and kept his accumulator well charged, but all to no purpose. One evening when we both had a few hours to spare we went over the wiring, &c., very carefully, but failed to find any fault with it; switch, wires and all connections were all they could be. In the end I wired up the horn direct to the accumulator without using any switch at all, and as it would not work like this either, I felt sure that the trouble was inside the horn. So I started to take the Klaxon to pieces, which proved to be not nearly so difficult as I had anticipated; all you have to watch in the process are the two connections inside the terminals. When I finally got the rotor out I found everything covered with fine metallic dust, which seemed to have come from the commutator brushes. On examining the brushes proper I found they were worn considerably, and in addition were stuck so fast in their holders that the springs could not push them on to the commutator.

I also found that some of the very small balls in the ball race at the bottom were broken, so that the rotor wobbled about a good deal. This wobbling, however, sometimes caused the brushes to make contact with the commutator, but as this only happened at irregular intervals, a good deal of sparking was set up, which caused the brushes to wear rapidly and unevenly, hence all the metal-dust. In the little town we were staying at the time, we were not able to get any balls small enough for that bearing, and being some 300 miles from London, we got over the difficulty in the following way. Instead of the six, or more, balls of $\frac{1}{16}$ in. diameter, I bought some small $\frac{1}{8}$ in. cycle balls and found that I could just get four of them nicely into the hole. The rotor spindle, which is tapered, just had room in the centre, and was kept true by the balls.

Finally, I trimmed the brushes, eased them in their guides, and putting some vaseline on them assured a good sliding fit, so that they were free to move up and down without side play.

This done, I assembled the horn again, put it back on the car, and connected it up to the old wires. It has worked perfectly ever since, and has not given the least trouble, although it is nearly five months since I did this job.—*Chs. H. Tyler.*

96.

BRIGHT METAL PARTS IN FOGGY WEATHER.—I just wonder whether anyone can give me a remedy to prevent polished brass or nickel parts of motor cars from turning dull and often tarnishing quickly in foggy weather. During the dense fogs we have had recently it was perfectly disheartening to do anything to the car in the way of making it look smart. Although my garage is quite dry and well ventilated, as soon as I had finished washing the car in the evening and got her indoors the varnish began "sweating" and became dull in less than no time. I started wiping the moisture off again with a shammy, but the gloss did not last long, so I gave it up as a bad job.

But it was much worse with the brass work. As usual I rubbed the polish on to it later in the evening and left it on over night. I polished everything bright in the morning so as to make sure that the car looks trim and smart when I take her round to the door. But it is no use on a foggy morning. I might as well leave the brasswork untouched, because, however bright it looked in the garage, it is quite dull by the time I get to the front door on a foggy morning, especially when I am kept waiting there for five or ten minutes.

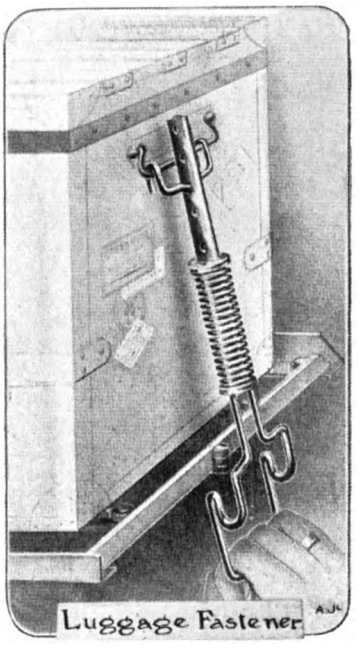
Although the boss has not said anything yet his looks tell me that he thinks the brasswork might be brighter, because I know that he is very particular in that way, and so am I myself for all that. I hate driving about all day in a car that looks as if it had spent the last few months in a pawnshop and had not been touched all the time. Nickel-plated parts are not quite so bad as brass fittings because they are easier cleaned, and only turn dull but do not tarnish as a rule. But the brass on my radiator and lamps, and all those brass parts that are likely to become warm, show all the colours of the rainbow after the car has been out on a damp foggy day, and it takes a long time and a lot of elbow grease to get them in anything like decent condition.

I am sure that many other chauffeurs have had the same experience, and my reason for pointing out this matter is to inquire whether anyone knows of a remedy that will prevent the metal work from turning dull and tarnishing in foggy weather. Hundreds of more or less useless accessories are placed on the market every week, but although I am looking out for some remedy of this drawback with keen interest, I have never yet heard of one.—*R. Thomas.*

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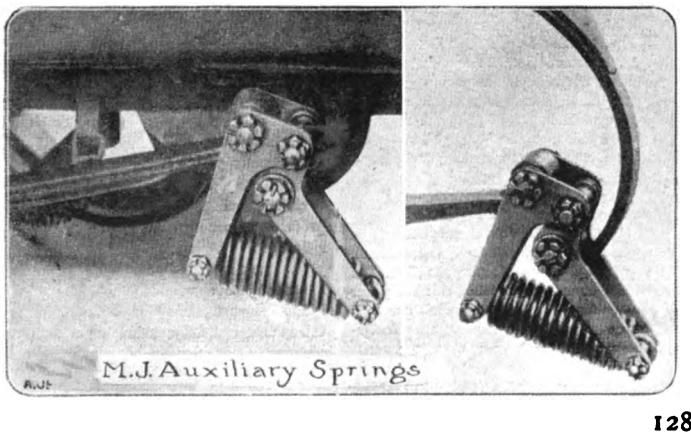
FOREIGN MISCELLANY.

Water-injection into the cylinders of internal-combustion engines is no novelty. In some cases the object has been to prevent pre-ignition (Priestman), in others to obtain a lower maximum and higher mean effective pressure in the cylinders, while some inventors have tried to substitute this method of cooling for the more usual water jacket (Hopkinson). A correspondent in *Automobil Welt* gives a description of a simple device applied by him to a 2½-h.p. single-cylinder motor bicycle. From a tank containing about half a litre of water a brass tube leads to the air-intake to the carburettor, while a cotton wick inserted into the end of the tube protrudes slightly from it. The air drawn into the carburettor has been heated by being brought in contact with the cooling ribs of the cylinder, so that the evaporation of the water from the wick is facilitated. A tap close to the water-tank and within easy reach of the rider, allows of the flow of water to be adjusted. On the flat, the writer found that no difference was noticeable, whether the water was turned on or not; but when climbing hills, knocking caused by pre-ignition was entirely eliminated, while the ignition could be retained in a more advanced position. The consumption of water amounted to about three-quarters of a litre per six litres of petrol.

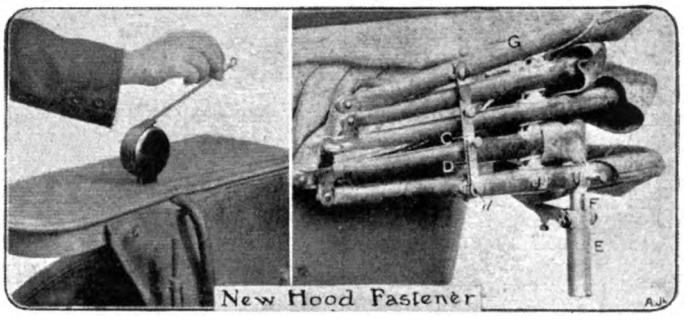


A luggage fastener.—Among the deluge of fittings and accessories which are constantly being produced, for the benefit or detriment of the motor car owner, the appliance illustrated herewith seems worthy of some attention as it does away with the straps which often form such an untidy complement to the touring equipment of a car.—*La Vie Automobile.*

The M.J. auxiliary springs.—With the ever-increasing number of devices of this nature, it becomes more and more difficult to do much more than mention their introduction, for in many cases they possess no conspicuous merit to distinguish them from other appliances of this class. The design before us is undoubtedly a simple one, and provides ample safety in the case of the breaking of the spiral spring.—*Omnia.*

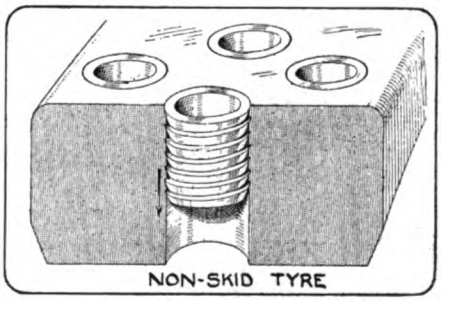


A novel hood fastener.—Though the use of the Cape-cart hood has become almost universal on open motor cars, the method of attaching the same when lowered in



the majority of cases still consists of leather straps. The French invention illustrated herewith aims at doing away with these somewhat unsatisfactory fastenings. The lowest stick of the hood rests on the spring plunger, F, the cylinder, E, of which is attached to the body of the car. Distance pieces, G, are interposed between the other sticks to prevent the chafing of the canvas, while they are firmly bound together by means of a metal strap, C, and eccentric toggle arrangement, D, *d*; when the hood is opened out its attachment to the front mudguards is accomplished by means of a ribbon contained in a winding drum on these mudguards, and which act like the well-known spring tape measures.—*Omnia.*

A novel non-skid tyre.—The inventor proposes to pierce a number of holes in a thick rubber band, and to introduce into these holes short steel cylinders, the outside of which have been grooved as shown in the accompanying illustration. The idea is that these cylinders will get filled up with grit, and so provide a good holding surface when passing over slippery roads. As the tyre wears



away the ferrule is supposed to recede further into the rubber. From the nature of the grooves shown it seems more than likely that each revolution of the wheel will cause the ferrules to enter the tyre further till they reach the bottom of the holes, where they will remain, taking no part in the action of the tyre as a non-skid.—*Omnia.*

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New Uniforms for R.A.C. Guides.

IT is announced by the R.A.C. that the touring guides stationed throughout the country will as soon as possible be supplied with overcoats of a smart military pattern made of a neat and serviceable blue-grey cloth. This material will also be used for future uniforms, which will gradually replace those at present in use.

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Notes from New York

SEVERAL canvas pails have appeared on the market at various times, but none have hitherto given very great satisfaction. A new one has just been placed on the New York market, however, which possesses several advantages. It is built of substantial material, and has the top closed, with the exception of about a third of the width, which provides sufficient opening to allow the water to enter from tap or pump. At the opposite top corner there is arranged a short tubular outlet, so that it is not necessary to use a funnel. The pail holds two gallons, and when not in use folds perfectly flat, and can be placed under the seat.

* * *

From Detroit it is announced that an electrical gear shifter is about to be placed on the market. It will dispense with the usual side lever, and the gear changing will be done by simply pressing a key on a small keyboard attached to the steering column and taking the clutch out and letting it in again. There will be five or six keys, marked R, N, 1, 2, 3, and 4 respectively, for reverse, neutral, first, second, third, and fourth speeds. The mechanism, which acts upon the gears and is dependent for its operation upon a set of electrical magnets and a battery of four dry cells, is contained in a pressed steel casing 10 ins. long, 4¾ ins. wide, and 3 ins. deep placed under the floorboards of the car.

* * *

Cincinnati, the only city of any size in the United States which has up to recently prohibited anything but the bulb type of horn, has now given way and substituted a new by-law making it unlawful to use any signal device which will not produce an abrupt sound sufficiently loud to serve as an adequate warning of danger.

* * *

With the object of assisting its army of agents, the Studebaker Corporation is opening a model garage, salesroom, and repair shop at Detroit. Dealers who visit these premises will be given lessons in window display, floor arrangement, repair economy, &c.

* * *

In some parts of the States the number of road-side signs is so great that any useful purpose which they ever served is nullified. The Harrisburg, Pa., Motor Club has been going into the matter of the signs in its territory, and proposes to eliminate those which have either been superseded or are out of date.

* *

At a meeting of about 150 salesmen drawn from various parts of the country at Indianapolis on October 9th, it was decided to form a General Automobile Sales Association, which, as its name implies, is an organisation which will aim at banding the motor salesmen of the country together. A number of addresses were given by leading men in the industry on subjects in connection with the sale of new or second-hand cars.

* * *

For the New York Motor Show, which is to be held next January partly in the Madison Square Gardens and partly in the Grand Central Palace, 490 applications for space have been received, including 87 from car manufacturers. These numbers are a little lower than last year, when, it will be remembered, the Shows were held separately, but it is probable that late comers will swell the list.

* * *

Owing to the fact that the noise of the running engine makes it very difficult for the transmission of a car to be thoroughly tested, the Hudson Motor Car Co. have fitted up a vault in which this portion of the work can be carried out. The rear portion of the transmission from the clutch to the rear axle is mounted on a special frame in the sound-proof vault and connected to the shaft which passes through the wall, and is driven by a standard motor outside. The tester can, under these conditions, thoroughly try the gears for silent running, &c.

* *

Arrangements have been made for the Importers Salon to be held in the ballroom of the Hotel Astor, New York, from January 2nd to 11th, and it is expected that several of the exhibits will be shipped direct from the Paris Salon. Among those who have already arranged to exhibit are the De Dion, Isotta-Fraschini, Lancia, Mercedes, Metallurgique, Minerva, Panhard and Renault firms.

* * *

It will doubtless be of interest to a good many English people to hear that the Olds Motor Works, of Lansing, Mich., will only make six-cylinder cars for next year and the five-seater car complete will be listed at $3,200. Slightly different vehicles to the little one "lunger" Oldsmobiles which were so popular for a time in England in the early days of motoring.

* * *

Some statistics, just issued by the U.S. Government, based on the 1909–10 census of manufacturers, show that one cent of each dollar of American capital is employed in the Automobile Industry. It is also stated that the number of wage-earners is proportionally greater than in any other industry as the following figures show :—

	Value of Product.	Wage Earners.
All industries	$20,672,052,000	6,615,000
Automobile industry ...	$249,202,000	75,721

In ten years the industry has grown 5,000 per cent.

* * *

The figures regarding the imports and exports for August have just been issued and show that 1,264 cars and 57 trucks of a combined value of $1,395,599 were sent out of the country during the month, while in addition 96 cars were sent to American Possessions. Great Britain's share was 113 cars valued at $100,090.

The imports during the month were 66 cars valued at $155,227, 33 hailing from France and 13 from England.

*

The export trade in tyres continues to mount up, and the value of the tyres sent out during August was $405,781, as compared with $251,262 during August of last year. The largest buyers were, Great Britain, $133,126 ; Canada, $105,266 ; Belgium, $87,241 ; Mexico, $51,987 ; Japan, $7,782 ; France, $4,140.

* * *

Howard Marmon, of the Nordyke and Marmon Co., has been nominated as the next President of the Society of Automobile Engineers, with Russell Huff and John G. Perrin as Vice-Presidents. The constitution of the Society does not permit of re-election to the Presidency, and consequently Mr. H. W. Alden, who succeeded to the chief office on the death of Mr. H. W. Donaldson, could not be asked to continue in the position.

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RACES, RECORDS, AND TRIALS.

The Arrol-Johnston Records.

IN our last issue we briefly referred to the successful attack by the 11·9 Arrol-Johnston on its own Brooklands Class B records up to six hours. With Mr. James Reid at the wheel a start was made at five minutes to eleven on Tuesday week and as soon as the car got into its stride it regularly reeled off the laps at 2 mins. 39 secs. each. During the first hour the weather was showery but this made no noticeable difference to the speed. In the first hour 61 miles 63 yards were covered, whereas last year the score was 50 miles 1,268 yards. The progress of the performance is clearly shown by the following table, but it may be stated that a stop of 1 min. 35 secs. was made at the end of the second hour and a stop of 1 min. 55 secs. the end of the fourth hour. The work of refilling was very smartly done and in the second stop, for instance, the actual time taken was 1 min. 15 secs. The car was absolutely standard with the sole exception of having the pistons drilled, and, at the start, weighed 2,012 lbs. The following are the new figures :—

				h.	m.	s.
1 hour ...	61 miles	63 yards				
2 hours ...	122 ,,	1,054 ,,	50 miles ...	0	49	14·95
3 ,, ...	182 ,,	1,011 ,,	100 ,, ...	1	38	1·75
4 ,, ...	245 ,,	343 ,,	150 ,, ...	2	28	34·49
5 ,, ...	305 ,,	1,146 ,,	200 ,, ...	3	16	42·89
6 ,, ...	368 ,,	742 ,,	300 ,, ...	4	54	36·46

The average speed worked out to 61·10 m.p.h.

Hazelwood Hill-Climb.

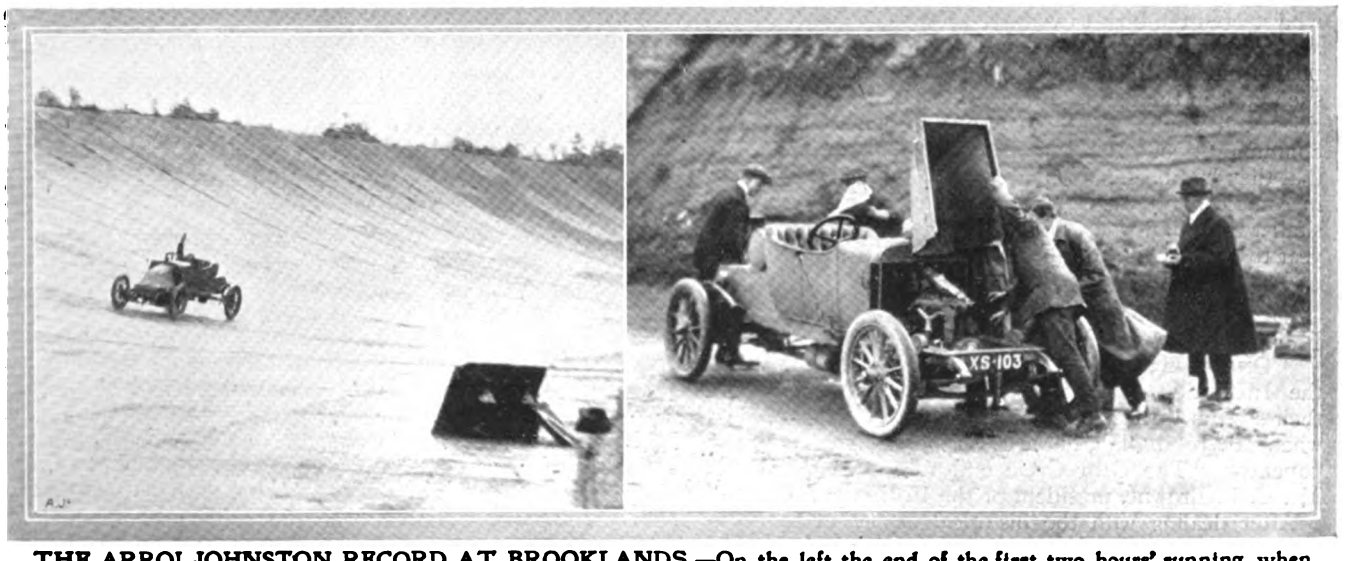
SOME very good driving was seen at the open hill-climb of the Derby and North Staffs A.C. on Wednesday of last week. Although Hazelwood Hill is only 1,490 yards long, with the steepest pitch of about 1 in 6·7, there are several turns which call for a good deal of skill to negotiate them at speed. The fastest time of the day was 59⅘ secs., made by Mr. J. Higginson on his 80-h.p. La Buire. But, after the event, Mr. D. C. Bolton, on a 3½-h.p. Rudge, expressed himself as able to beat this time. He proved successful, going up the hill from a standing start in 58⅘ secs., while from a flying start he did it in 52 secs. In the class for cars up to 13 h.p., Mr. C. Crawford, on the 7-h.p. Turner, made the fastest time, and also won the gold medal on formula. In the second class, for cars up to 20 h.p., two 20-h.p. Vauxhalls tied for fastest time, and, on the run-off, Mr. Collin Lings went up in 1 min. 15⅘ secs., while Mr. A. Fillingham, the other Vauxhall driver, secured the gold medal for formula. In the class for cars irrespective of h.p., Mr. J. Hedge, on the 25-h.p. Talbot was fastest in 1 min. 1⅗ secs., with Mr. G. H. Woods on the 20-h.p. Crossley second. On formula Mr. C. Bianchi (12–16 Crossley) won the Silver Cup, Mr. A. Fillingham, 20-h.p. Vauxhall, second. In the contest for fastest time Mr. Higginson, as we said above, was first, while Mr. J. Hedge, on the 25-h.p. Talbot, was second in 60⅘ secs. In the class for members in the Derby and North Staffs Club driving standard touring cars, Mr. H. Jefferson, on 40-h.p. Berliet, made the fastest time, while Miss Starkey, on a 12–16 Sunbeam, which made second best time, was the winner on formula.

Petrol Consumption Trial in Kent.

LAST Saturday a party of members of the Kent A.C. enjoyed the hospitality of their President at Broomhill, Tunbridge Wells, and in spite of the inclement weather they spent a most enjoyable time. A petrol consumption trial was arranged over a course which included the Westerham, Hosey Common, Heathen Street, Collinghurst, and Groombridge Hills. The minimum time allowed for the 33 miles being 99 mins. The winner was Mr. R. W. James, on a 20-h.p. Humber, who did 36·5 gross ton-miles per gallon, Mr. B. A. Castellote on a 15-h.p. Renault was second, with 36·25 ton-miles, and Mr. F. W. Lucas on a 15-h.p. Renault was third, with 32·2 ton-miles, and was awarded the R.A.C. medal for reliability. Mr. Julian W. Orde, Mr. Nicholls, and Mr. Granville Kenyon acted as judges.

The A.C.U. Standard Silencer.

THE regulations have now been issued by the Auto Cycle Union concerning the Silencer Trials which are to be held during the second week in December. The committee have decided that the exhaust of a 500 cc. single-cylinder motor-cycle engine is satisfactorily silenced by an exhaust box 14 ins. long by 5 ins. diameter, the exhaust entering at an angle at one end of the



THE ARROL-JOHNSTON RECORD AT BROOKLANDS.—On the left the end of the first two hours' running, when Reid intimates that he proposes to stop at end of next lap. On the right a quick overhaul of the car during the first stop.

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chamber through a pipe 1½ ins. bore, 15 ins. long, and leaving at the other end of the chamber by a ½-in. bore pipe 8 ins. long. The silencers entered for competition will be tested when fitted to a 500 cc. engine on the bench, as well as in the complete machine, against this standard silencer. In arriving at the results, the following will be taken into consideration: Degree of noisiness as compared with the standard, weight, volume and general practicability.

The A.C.U. One-Day Trial.

OVER a very trying route in the Lake District, with the start and finish at Kendal, some 54 competitors took part in the Autumn One-Day Trial of the Auto Cycle Union last Saturday. A start was made at 8 a.m. in bright but very cold weather, and more than one competitor during the morning run was stopped with a frozen carburettor. Tow Top, Kirkstone Pass, Red Bank, and other hills all provided splendid climbing tests, but the gem of the collection was Blaetarn, the ascent out of the Langdale Valley. The severity of this can be gauged by the fact that only five competitors succeeded in riding to the top. The judges subsequently decided not to take official notice of the stops on this hill, but those who climbed it will have the fact noted on their certificates. The trial was concluded in a downpour of rain. Those who made non-stops were C. T. Newsome (Rover), D. H. Noble (Rover), J. R. Alexandra (Indian), S. Crawley (Triumph), J. E. Greenwood (Sunbeam), E. Walker (Monarch), S. T. Tessier (Bat), L. Newey (Aerial), F. C. North (Aerial), G. D. Hardee (Triumph), W. Pratt (P. and M.), Shaw (P. and M.), S. R. Rowlandson (Rudge), G. T. Grey (Rudge), J. Chater Lea (Chater Lea Sidecar), Frank Smith (Clyno Sidecar), H. F. S. Morgan (Morgan Runabout), R. G. Munday (G.W.K.), J. T. Wood (G.W.K.). The four first named got up Blaetarn, and the fifth to do so was J. Busby, on an Alldays, who had the bad luck to have a stop at Ambleside through his petrol being turned off.

New Hour Motor Cycle Record.

ON Tuesday of last week G. E. Stanley, on his 3½-h.p. single-cylinder Singer, succeeded in improving on the hour record for this class of machine. After the first lap he went round and round at a pretty even speed in the neighbourhood of 70 m.p.h., and the 50-mile record was reduced to 43 mins. 12⅗ secs. Misfortune, however, tracked him down in the twenty-fifth lap, and about 3 mins. before the completion of the hour, an inlet-valve spring gave out, and he finished the lap at a walking pace. He had, nevertheless, broken the record by covering 67 miles 782 yards in the hour.

A French Motor Cycle Unofficial Record.

ALTHOUGH the performance was not timed by an official of the A.C.F., Grapperon, on a motor cycle of his own make, fitted with an Anzani motor 85 mm. bore and 87 mm. stroke, at the Parc des Princes track, Paris, was timed on Friday of last week to cover 85·332 kiloms. in the hour.

MOTOR BOATING.

Celebrating the B.I.T. Victory.

A LARGE party of members of the Royal Motor Yacht Club were present at a dinner of the R.A.C. on Wednesday week to do honour to Mr. Mackay Edgar, the owner of "Maple Leaf IV," which recently won back the British International Trophy for Great Britain. Lord Charles Beresford, Commodore of the Club, was in the chair, and in proposing the toast of "the Guests" spoke appreciatively of the great enterprise and energy displayed by Mr. Mackay Edgar, and the splendid work of the designer of the boat, Mr. Saunders, the builders of the engines, the Austin Motor Co., and Mr. T. Sopwith, who steered the boat to victory. Lord Charles Beresford also referred to the use which could be made of motor boats from a national defence point of view, and said that such craft in the hands of those who knew the coast and tides well would be of the utmost service as a line of communication. In responding, Mr. Mackay Edgar said that they had been shown every hospitality and kindness in America, and their American friends could rely on a similar reception when they came over to England next year to race for the trophy. He would like to see competitors from France, Germany, Italy and Spain in the next race, and wherever the B.I.T. went, he could assure them that he would go after it. After the dinner, Bioscope pictures of the races for the trophy was shown, and greatly appreciated by those who were not fortunate enough to go across to America to see the actual racing.

R.M.Y.C. Restricted Class.

MR. NORMAN C. NIELL'S prize for the boat in the R.M.Y.C. restricted class gaining the greatest number of marks has been awarded to Col. Cowper Essex's "Pixie II," with an aggregate of 39 marks out of eight starts. Mr. J. Bird's "Rip III" was second with 24 marks, but it will be remembered she was considerably handicapped by coming out late in the season.

B.M.B.C. Races in France.

NOT only will there be races for the popular B.M.B.C. 21-ft. class at the Monaco Meeting next April, but the British Motor Boat Club have now received an invitation from the Regatta Committee at La Toquet in regard to a suggested four days' regatta to be held next July, when it is proposed to hold races for the B.M.B.C. Class.

Northern Centre of the I.A.E.

ON the 23rd ult., the North of England Centre of the Institution of Automobile Engineers commenced their session by a meeting at the University, Manchester, when Mr. John Okill, of the Liverpool University, read a paper on "The Otto Cycle and the Fuel Question," Mr. T. B. Browne, president of the Institution, presided.

After dealing with the historical aspect of the Otto Cycle the author described a number of paraffin carburettors, and continued by a brief review of the economical advantages of the Diesel engine. Having pointed out the impracticability of this engine for automobile vehicles on account of its inelasticity and weight, he concluded by showing an arrangement of engine designed by himself. This engine could be started up as a low compression engine on electrical ignition in the ordinary way, and by raising a sleeve, thereby isolating the combustion chamber from the valve pocket, when well under way, the engine is converted into one running on the Diesel principle.

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CURRENT ITEMS OF INTEREST.

Coachmakers Company Prizes.

THREE of the five competitions organised by the Worshipful Company of Coachmakers and Coach Harness Makers refer to motor cars. One calls for full-sized working drawings of the side view of a cabriolet motor body and details, another, which like the first is open to all, is for a set of drawings for a commercial traveller's motor car, while a third, open to youths under 21 years, calls for side view and plan of two-seated motor body. The prizes are medals and cash, and full particulars can be had from Coachmakers' Hall, Noble Street, E.C., and 8, Lincoln's Inn Fields, London, W.C.

Resilient Tyres for Traction Engines.

THE Metropolitan Boroughs Standing Joint Committee has been giving its attention to complaints received as to the noise and vibration of traction engines with trailers, and they have decided to ask the Local Government Board to promote legislation for securing a reduction of the maximum weight of traction engines, and to make a regulation requiring that the wheels of traction engines and heavy motor cars shall be fitted with resilient tyres. The L.C.C. is to be asked to support these requests.

Metropolitan Boroughs Ask for Traffic Board.

ANOTHER subject discussed by this committee was the question of London's motor traffic, and a resolution was passed urging the Government to immediately appoint a committee to investigate and report upon this question.

A Blériot Hydroplane.

A DAY or so ago a curious craft was seen skimming along the Seine between the Bezons and Argenteuil bridges, and those acquainted with aviation might have recognised that the helmsman was none other than M. Louis Blériot. His craft was a very light arrangement of three floats, one in front and two behind, and they carried a framework supporting a 50-h.p. Gnome motor which drove a Chauvière propeller. This novel craft has been built to the order of M. Gonzalon Mejia for use on the rivers of South America. It is designed to carry several people—although it weighs not more than a hundred kilogs.—and in its first tests with three persons on board it covered 2·1 kiloms. in 1 min. 51 secs.

An Outing for East London Children.

LAST week a party of seventy cripple children from the L.C.C. Physical Defective School at Shadwell were taken for a run in Hainault Forest on motors provided by the members of the Essex Motor Club. An interested spectator was Mr. Stenson Cooke, who was congratulated by a number of his friends on being able to be out again.

Streatham's Proposed Speed Limit.

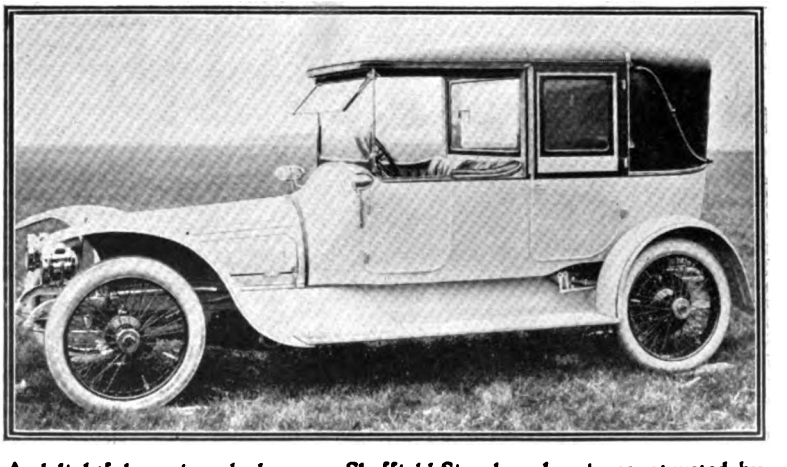
THERE were one or two more than usually interesting items in the evidence which was produced at the local enquiry conducted by the Local Government Board at the County Hall, Spring Gardens, recently, regarding the application of the London County Council for speed limits in Streatham High Road and Tooting Bec Gardens. Mr. J. Dean, who opposed the application on behalf of the R.A.C., pointed out that on the scheduled stretch of road there was a police station and the Metropolitan Police were not as a rule slow to put into effect the provisions of the Motor Car Act.

Perhaps the most important evidence was that given by the police who, as usual, were against the granting of a speed limit. Superintendent Bassom, from Scotland Yard, said that the Commissioner of Police had given careful and personal consideration to the matter, and was of opinion that no good service would be served by the imposition of a speed limit within the area. He wished to point out that retardation of pace invariably increased congestion, and congestion confusion, and from the statistics the police had, it was found that confusion was responsible for the greater number of accidents. It was necessary, especially on main roads such as this, to prevent congestion as much as possible and get the traffic through at the greatest pace, having due regard to the safety of the public. The Commissioner saw no great difference between this and hundreds of other thoroughfares in the metropolis.

Also the Putney Application.

SIMILAR evidence was given by the police at the local enquiry, held at the County Hall, on Monday week, regarding the application for a speed limit in Putney High Street and over Putney Bridge. Supt. Bassom, on behalf of the Police Commissioner, said that a speed limit would be practically unenforcible, and statistics showed that the majority of accidents occurred where there were comparatively low rates of speed. He added that something would probably be done shortly to alter the stopping places of motor 'buses and trams where the present arrangements created congestion.

Professor Watts, of the Imperial College of Science, South Kensington, who drives his motor twice a day over the scheduled roads, said that he thought no special difficulty was presented. At times two miles an hour would be too fast; at others, fifteen miles would be too slow. With a speed limit in force people became heedless, and he was convinced that a child at Merton was killed owing to the speed limit.



A delightful carriage body, on a Sheffield-Simplex chassis, constructed by Messrs. Brown, Hughes and Strachan, Ltd. The more merit attaches to this by reason of its having been constructed in sixteen days from the date of the order being received from the Marquis of Londonderry, whose carriage it is.

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No Increase in Motor Cycle Taxation.

THE answer given in the House of Commons last week to the effect that no alteration in the scale of taxation of motor cycles could be made without fresh legislation has eased the minds of some motor cyclists. In the meantime, however, the Joint Committee, under the Chairmanship of the Hon. Arthur Stanley, representing the A.C.U. and the other allied bodies concerned with motor cycling, is giving its close attention to the suggestions of the Government Committee.

Accidents in the Metropolis.

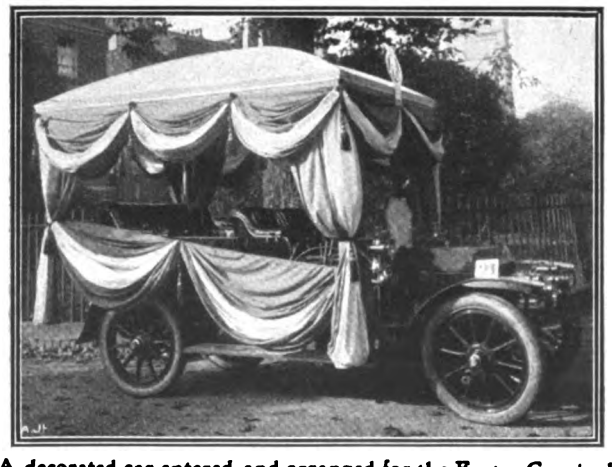
IT was a pity that some papers overlooked the fact that Mr. McKenna last week in the House of Commons, after giving some statistics regarding the accidents caused by motor cars in London last year, also mentioned that 115 persons were killed by horse-drawn vehicles in the Metropolitan Police District, while 16 were killed by bicycles unconnected with motors. Taxicabs were responsible for the death of 31 persons, light motor cars 86, heavy motor cars 30, motor cycles 7.

More Refuges Needed.

QUESTIONED by Sir H. Carlisle as to the causes of so many motor 'bus accidents, Mr. McKenna said that on analysis it was found that a large proportion of those killed by motor omnibuses this year were cyclists, while another important factor is the scarcity or absence of refuges. He pointed out that in all but three instances the jury at the inquests exonerated the driver from blame. According to the records of the Police, 24 children under the age of ten were killed by motor omnibuses in the metropolis during the first nine months of this year, the majority of the accidents occurring at places where there were no refuges. This is a matter to which Mr. McKenna is giving his careful attention.

Lectures for Middlesex Motorists.

A SERIES of lectures quite non-technical in character, and calculated to be of special interest and use to motorists who drive their own cars, has been arranged by the Middlesex County A.C. The first will be held at the Royal Automobile Club, on Wednesday, November 6th, when Mr. R. W. A. Brewer will lecture on "Carburation." The club extends a cordial invitation to motorists living in Middlesex to attend, and those who do not belong to the club might find it to their advantage to apply to the secretary, at 89, Pall Mall, S.W., for a useful booklet dealing with the club and its activities.



A decorated car entered and arranged for the Exeter Carnival on October 16th by Messrs. Gould Bros., Ltd., the proprietors of the well-known garage in Exeter.

A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

New Members.—Several prominent motorists joined the Association last month, including Sir Edward George Hemmerde, K.C., M.G., Sir Guy Campbell, Bart., The Earl Amherst, Lady Aberdour, The Rt. Rev. Lord Bishop of Peterboro', Laura Lady Airedale, Lady Medleycott, The Dowager Lady Jenner, Sir Edward Gandy, Sir George Thompson Hutchison, Judge Eardley Wilmot, Vice-Admiral Thomas Young Greet, The Duchess of St. Albans, Lady Elizabeth Parker, Admiral Dudley Rawson de Chair, Sir Wm. Ashcroft, Sir Wm. Ingilby, Bart., Sir T. H. Hepburn, The Earl of Mount Edgcumbe, Sir E. Montague Nelson, K.C., M.G., H.S.H. Prince Cantacuzene, Duke de Choiseul-Praslin, and Sir Benjamin Scott.

Important Road Warnings.—*Brentwood.*—A member of the Brentwood Bench has communicated with the Association regarding the non-observance of the speed limit in that town. The Bench are determined to have the speed limit observed, and have issued special instructions to that effect. At present the restriction is being ignored by many cars, but members are warned that unless an improvement takes place, measured distances will be operated by the local police authorities.

Hatfield.—Complaints have been lodged with regard to the speed of motor cycles and cars between Little Heath and Hatfield. The police are likely to institute controls if cars are not driven with more care.

Cycle-Cars and Railway Rates.—At present, cycle-cars, whether sent by passenger or goods train, are classed as motor cars, and are charged for accordingly. Owing to their lighter weight, the minimum charges based upon a weight of one ton and upwards, are manifestly unfair for vehicles weighing only a few cwts. The Association is therefore taking up this matter with several of the Railway Companies, in the hope that lower rates may be instituted for cycle-cars.

Misleading Road Signs.—Particular attention is given by the Association to all reports relating to direction signs alleged to be misleading, and several cases might be quoted where such signs have either been removed, or their positions altered, following upon action taken by the Association. One sign now under consideration is that erected at the junction of the two roads from Corfe Castle to Swanage. In this case, motorists are directed to take a certain road, although the alternative road, marked as "dangerous" is said by many members to be the best road.

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COMPANY DOINGS.

Stepney Spare Motor Wheel, Ltd.

DIRECTORS' report of the Stepney Spare Motor Wheel, Ltd., states that the sales of Stepney wheels have been very satisfactory, but the general demand has been for smaller-sized wheels, owing to the greater use of light-powered cars, therefore necessitating a smaller wheel at less profit. The turnover in tyres, more especially the Stepney patent road-grip tyre, has greatly increased, but this department would have shown a better result were it not for the fact that the value of the large stock of tyres was greatly reduced by the enormous reductions made by competitors in their prices. The sales of the other specialities have also been satisfactory. The profits of the German, Austrian, and Canadian branches are incorporated in the profit and loss account, and each of these branches continues to do a steady trade. After allowing for depreciation on machinery, plant, office furniture, and fixtures the accounts for the year to August 31st show a net profit of £26,588. This sum, with £31,766 brought forward, makes an available profit of £58,354, which the directors recommend to be disposed of as follows:—Interim dividend of 10 per cent. declared in April, absorbing £8,755; a further dividend of 10 per cent., making 20 per cent. for the year, £8,755; to write 15 per cent. off patent rights, £5,639; leaving to be carried forward, £35,205.

Rover Co., Ltd.

THE report of the directors states that the trading profits for the year amount to £57,680 1s. 5d. After adding transfer fees, the balance forward from last year, and providing for depreciation and repairs of machinery, plant, tools, &c., debenture interest, directors' fees, leasehold sinking fund, National Insurance Act and income tax as per income and expenditure account, there remains an available balance of £44,557 12s. 10d. This the directors recommend should be dealt with as follows:—To pay a dividend of 10 per cent., less tax, £13,057 18s.; to write off balance of goodwill, patents, &c., £10,000; to write off plant account, £8,000; and to carry the balance forward to next year's account, £13,499 14s. 10d.

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MIDLAND MEMS.

IT is interesting to learn that the Wolseley Motor Car Co. are about to enter the field of commercial vehicle production, and at the moment have several cars of that type in course of construction. There is little doubt that a big business awaits them in this direction, and their advent into the business vehicle industry will be welcomed. By the way, how rapidly the Wolseley works are growing! Already, the frontage to the North-Western line exceeds half-a-mile, while the present extensions are not yet completed.

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Although Mr. Belcher, of Humber, Ltd., has resigned the position he held as sales manager to that firm, I am glad that his connection with the firm is not entirely to discontinue. Humber, Ltd., have recently closed their Nottingham depôt, and the agency has been transferred to Messrs. A. R. Atkey and Co., Ltd., with whom Mr. Belcher is joining forces.

The sales side of the business of Humber, Ltd., is now under the very able management of Mr. H. Davey.

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Messrs. Alfred Huggins and Co., Ltd., Broad Street, Birmingham, are evidently out for business. They have a very well-appointed place. The other day, their genial manager, Mr. Huggins, trotted me through his showrooms and works. The latter are splendidly equipped for the execution of complete overhauls and all and every kind of repair. Here bodies are also built and finished complete on the premises, and a speciality is made of repainting and varnishing.

Every motoring accessory is stocked. Mr. Huggins holds sole Midlands agencies for Delaunay-Belleville, Benz, Swift, Sunbeam, Baguley and Kritz cars.

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I learn that the Premier Motor Co., of Aston, are about to "line up" with the latest recruits to the ranks of the cycle car manufacturers. They are putting on the market a light-weight four-wheeler, fitted with a 10–12-h.p. Jap air-cooled engine and friction drive. A notable feature of the engine is to be found in the cylinders, which are set at 90°, by which means even firing is effected.

The price of the car will pan out at £100, and will be exhibited at the Motor Cycle Show on Stand 68.

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Messrs. A. W. Wall, Ltd., of Tyseley, are going strong with their three-wheel runabouts.

Chatting the other day with Mr. Wall, I was somewhat surprised to learn that he has received orders for these little cars from Seoul, capital of Korea, Odessa, Milan, Denmark, and other "furrin parts." So that the popularity of this little production is by no means confined to its own doorstep. Several well-known houses are taking them up in small quantities in connection with their retail delivery business, amongst which may be mentioned the well-known firm of Messrs. Boots, cash chemists. For two types of this runabout are made—one for pleasure purposes, the other for goods delivery business.

I can perhaps add my mite of testimony to the splendid behaviour of this diminutive pleasure car, for I drove one on a recent week-end trip, with my wife and little girl as passengers. We rode through, perhaps, eighty odd miles of country, over all sorts and conditions of roads, and although I had had no previous experience of the car, she gave absolutely no trouble, answering readily to the stiffest gradient, and indeed to everything that was asked of her, in fine fashion.

PEJAY.

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PUBLICATIONS RECEIVED.

Toothed Gearing. By Geo. T. White, B.Sc. (Lond.). The Broadway Series of Engineering Handbooks. London: Scott, Greenwood and Son, 8, Broadway, E.C. Price 3*s.* 6*d.* net.

Zoneless Gazetteer Tariff. Davies Turner and Co., Ltd., 52, Lime Street, London, E.C.

The Homeland Reference Books: Southern England, Coast, and Countryside. London: The Homeland Association, Ltd., 15, Bedford Street, W.C. Price 1*s.* net.

The Homeland Reference Books: Where to Live Round London (Southern Side). London: The Homeland Association. Price 1*s.* net.

The Gasoline Automobile: its Design and Construction. Vol. I. *The Gasoline Motor.* By P. M. Heldt. New York: The Horseless Age Co.

The "Perrier" Motor Map of England and Wales. The "Perrier" Table Water Co.

Motor Cars and their Story. By F. A. Talbot. London: Cassell and Co., Ltd. Price 21*s.* net.

THE BENEVOLENT FUND BANQUET.

ABOUT 250 members of the cycle and motor trades foregathered at the Connaught Rooms on Thursday week for the Annual Banquet of the Cycle and Motor Trades Benevolent Fund. Mr. Albert Brown was in the chair, and, in the course of his opening remarks, said he was gratified to be in that position, as he was one of the first few who helped to start the fund. He referred to the energetic work of Mr. A. J. Wilson, who originated the fund, and has acted as its Honorary Secretary from the first, and the assistance rendered by Miss E. M. Sayer. He appealed to the representatives of the big firms present to make known to their employees the extraordinary valuable benefits which could be obtained for the merely nominal subscription of five shillings, and said that if only they had some 50,000 more five-shillings subscribers they could do a lot more good. He mentioned that the Society of Motor Manufacturers and Traders had given a donation of a thousand guineas, while the Cycle and Motor Cycle Manufacturers' Union have promised 250 guineas. Mr. A. J. Wilson, in his speech, referred to the working of the fund, and the absence of red tape. They did not, he said, profess to give 9*d.* for 4*d.*, but they had often given £50 for 5*s.* He pointed out that the great majority of cases they were called upon to relieve were those of very humble people who lived from hand to mouth, and had no means of subsistence when laid aside for a week or two by illness; to these, £5 or £10 in the nick of time came as a veritable godsend. During the evening, Mr. Brown presented to Mr. Paxton and Mr. Tustin gold badges, given by Mr. A. J. Wilson, in recognition of their work on behalf of the fund. Last year Mr. Paxton obtained 250 subscribers, and this year has obtained over 400, while Mr. Tustin has so far got over 200. Subscriptions and donations to the tune of about £2,800 were collected during the evening, and after the dinner a programme of musical items was rendered by Miss Annie Bartle, Miss Violet Oppenshaw, Mr. Ivor Walters, Mr. Peter Dawson, and Mr. Willie Rouse.

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ROUNDABOUT NOTES.

THE demand for Vauxhall cars from Spain has necessitated the publication of a special catalogue with the letterpress in the Spanish language. It follows the *format* of the English edition, and is produced in the same elegant style.

ON many of the best known makes of cars at Olympia, including Wolseley, Hotchkiss, Chenard-Walcker, Adams, Deasy and Cadillac, Frankonia domed mudguards will be in evidence. Frankonias blend with any form of body, and are obtainable from all high-class manufacturers and coachbuilders. A little booklet on the mudguard question, and which gives the latest designs, can be had from the sole agents, Messrs. Barimar Ltd., 10, Poland Street, Oxford Street, London, W.

THE Midland Rubber Co., Ltd., we are informed, have been successful in obtaining an important order from the War Office for solid band tyres, to be used in the mechanical transport department by the Army Service Corps.

SOME misunderstanding appears to prevail as to the dimensions of the engine in the 200-h.p. Benz car which broke the record for Gaillon Hill, at a speed of 101·2 m.p.h. The bore and stroke were 185–200 respectively, and not 200–250 as some have seemed to think. The Benz car which made the second fastest time in the touring classes was a standard 28–35-h.p. model, 95 bore and 140 stroke, for which the Brompton Motor Co., Ltd., 78 and 80, Brompton Road, are the agents.

THE Albion Motor Car Co., Ltd., have opened a depôt for the sale of Albion manufactures at 283, Deansgate, Manchester. This depôt will be in charge of a fully qualified staff who are thoroughly efficient in all matters pertaining to Albion vehicles, and it is proposed to carry a full stock of spare parts there.

HOW usual is it for firms after taking space at Olympia to leave their exhibit to be rushed through at the last moment, but the record for preparedness must surely be held by Messrs. F. S. Bennett, Ltd., who have all their exhibits ready almost a month ahead, waiting for the opening day. In the interval the company are exhibiting their Show Cadillacs at 219-229, Shaftesbury Avenue, W.C. The Cadillac exhibits include a chassis with all the working parts sectioned, and many have taken the opportunity of studying this away from the crowds of Olympia.

A SPLENDID oil consumption performance is recorded by the Packard Motor Co., of America, with the Argyll sleeve-valve engine. The engine tested was the 25–50 h.p. type, and ran 1,500 miles on a gallon of oil.

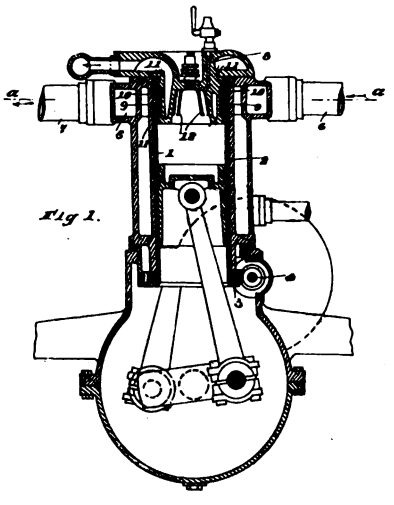
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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

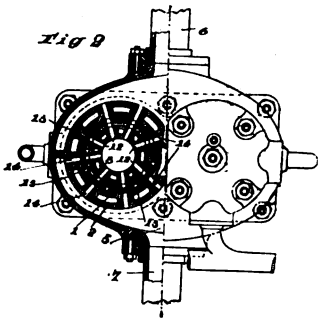
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

21,810. October 3rd, 1911. Improved Sleeve-valve Internal-combustion Engine. L. S. de Richelle, 104, rue du Jambon, Ghent, Belgium.—This invention relates to internal-combustion engines of the kind in which a rotary sleeve-valve is employed for effecting the distribution. The valve is provided at its upper end with ports which co-act with ports in the upper end of the cylinder and head. The sleeve-valve has at its upper end eight longitudinal slots adapted to register with corresponding slots in the head and cylinder, so that the sleeve may revolve at relatively low speed, thus reducing the wear. Fig. 1 is a vertical section of an engine. Fig. 2 is a horizontal section on line *a–a* of Fig. 1. The sleeve-valve, 1, revolves within

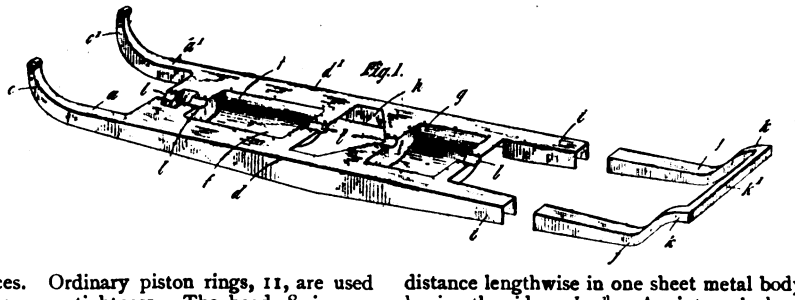


the cylinder, 2, and is provided at its lower rim with teeth, 3, meshing with a worm, 4, rotated by the engine. The sleeve, 1, is provided with longitudinal slots, 13, Fig. 2, and the upper end of the cylinder, 2, has also longitudinal slots, 14, and is surrounded by an annular chamber, 5, to which are connected the suction and discharge pipes, 6 and 7, respectively. The head, 8, of the cylinder extends into the sleeve, 1, and the tightness thereof is secured by means of segments, 9, the width of which corresponds to the height of the slots of the cylinder. The segment, 9, presses against the wall of the sleeve a segment, 10, formed of two pieces. Ordinary piston rings, 11, are used to increase tightness. The head, 8, is provided with longitudinal slots, 12, extending through same, the large segment, 9, and segment, 10, and adapted to register with the slots, 14, of the cylinder, 1. As soon as the engine is started, the sleeve-valve, 1, revolves, and opens and closes alternately the admission and discharge slots. The sleeve, 1, is revolved continuously at a speed sixteen times slower than the speed of the motor-shaft, and the slots are arranged such that, after an exhaust-slot of the sleeve is moved beyond an exhaust-slot of the head, it will only be brought into register with the next exhaust-slot of the head when the piston has effected the next admission, compression and explosion. The admission-slots operate in a similar way.—October 9th, 1912.

27,292. December 5th, 1911. Improvements in and relating to Chassis and other Parts of Motor Road Vehicles and the like. J. B. Taunton, Little Ote Hall, Wivelsfield, Sussex.—The invention relates to the main frames or bodies of chassis for motor road vehicles formed from one piece of sheet steel, which, after being cut, is pressed between dies, or otherwise forced into shape by heavy pressure. In the pressing to form separate internal chambered recesses by the dies, the recesses constitute the bottom halves of the engine crank case and the gear-box as integral parts of the main body of the frame



instead of these parts being separately attached, and also the formation of depressions in the frame in like manner to accommodate the main bearings to ensure perfect alignment. The frame, after testing, is not subjected to any severe strain, as the depressions to accommodate the main bearings of the several parts of the mechanism can be machined out so as to be in perfect alignment. Parts of the metal may be cut away to admit of the introduction of various working parts and also to lighten the chassis. Fig. 1 is a perspective view of the entire chassis frame. The front side members, *a*, a^1, are pressed or formed U or channel shape in cross section and have their fore ends upwardly curved to receive the dumb irons, *c*, c^1, which are rivetted in the channel ends. The chassis extends from these front side members for some distance lengthwise in one sheet metal body, having the sides, *d*, d^1. An integral chambered recess, *f*, is made to form the bottom half of the engine crank case, and a like recess, *g*, is formed to serve as the lower portion of the gear-box. A space, *h*, may be formed by cutting away a portion of the sheet metal body for the passage of the engine fly wheel and clutch. The rear side members, *i*, are formed in one with the rest of the frame, and like the front members, are channel or U-shaped in cross section, and gradually tapering towards the curved portion, *j*, which rises upwards towards the back part, *k*, of the chassis of which the rear integral cross member, k^1, forms part. Suitable depressions, *l*, are formed by the dies when the frame is pressed to shape so as to be in perfect alignment for the reception of the usual bearings for the engine shaft and main driving shafts.—October 9th, 1912.



Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published October 31st, 1912.

15,755. G. Paduvani. Driving mechanism.
21,820. C. J. Martinel and M. Huxley. I.C. engines.
21,836. J. M. Jackson. Acetylene generator.
21,990. A. Rigaud. Double-acting I.C. engines.
22,348. A. and C. B. Lines. I.C. engines.
22,527. O. L. Borner. Inlet and exhaust-valves.
22,561. G. W. A. Brown and Clement Talbot, Ltd. Pistons.
22,638. Bowden Wire, Ltd., and G. F. Larkin. Flexible transmission gear.
22,766. J. T. D'Albay and Soc. Houdaille et Sabot. Rotating cyl. I.C. engines.
23,208. G. Iochum. Rotary explosion engines.
24,542. M. Beckermann. Wheels.
24,778. Crompton and Co. and Others. Electric vehicles.
24,932. Soc. du Carburateur Zenith. Carburettors.
25,289. J. Davidson and W. O. Larmuth. I.C. engines.
26,408. Crompton and Co. and Others. Electric cars.
27,418. G. W. Blackburn. Motor road-sweeping machines.
27,476. C. D. Williams. Pneumatic wheels.
27,870. C. S. and J. A. Challiner. Tool for fitting tyres to rims.

Published November 7th, 1912.

20,232. S. Smith and Son, Ltd., and P. O. Dorer. Centrifugal governors and speed-indicators.
22,339. A. W. Savage and Savage Tyre Co. Tyres.
22,450. J. T. F. Ryland and — Louis. Variable-speed gear.
22,636. W. Cochrane. Valves.
22,713. R. Allen. Pistons and piston-valves.
22,714. W. B. Crofton and P. E. Hunt. Variable-speed gearing.
22,716. J. Ludlow. Seats for cars.
22,770. N. A. Christensen. Self-starters.
22,820. L. A. Verdet. Rotary explosion motors.
22,881. A. G. New. Motor vehicles.
23,148. P. L. Johnson and F. J. S. Kilgour. Variable-speed gear.
23,217. S. Cooke and Automobile Association. Badges.
23,898. J. and J. R. Oldfield, Ltd., and R. A. Oldfield. Lamps.
24,392. Soc. du Carburateur Zenith. Carburettors.
25,189. Alldays and Onions Pneumatic Eng. Co. and C. E. Simms. Motor cars.
25,378. S. Smith and Sons, Ltd., and P. O. Dorer. Odometers.
25,885. T. Mills. I.C. engines.
28,311. A. Gordon. I.C. engines.
29,258. W. C. Piggott. Wheel-guards.

Applied for in 1912.

Published October 31st, 1912.

681. L. S. De Richelle. Valve mechanism.
682. L. S. De Richelle. Cam-valve gear.
1,868. P. Barriere. Explosion engines.
2,305. C. Brown and Brown and Barlow, Ltd. Carburettors.
3,002. G. B. Jackson. I.C. engines.
7,246. Allegemeine Elektricitats Ges. Multi-cylinder I.C. engines.
8,959. J. G. Stuart. Starting I.C. engines.
9,629. I. T. Price. Reciprocating engines with curved cyls.
9,641. G. Charavet. Spring wheels.
12,447. A. Sanchez and C. Baradat. Rotary I.C. engines.
14,038. M. Derihon. Shock-absorbers.
14,117. E. H. Tartrais. Hermetic packings for rotary valves.
16,280. C. E. Moser. Shock-absorbing wheels.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 618. (No. 45, Vol. XVII.) | NOVEMBER 9, 1912. | [Weekly, Price 3d. Post Free, 3½d.



At the Horsham Retriever Trials at Peper Harow, Godalming, last Friday, showing the old entrance to the estate.

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

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Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

The Show.

Each year it seems to become more and more difficult to write in more than general terms about the Show. In spectacular effect and in the volume of business accruing to the exhibitors, each November as it arrives and passes marks a fresh high-water mark in the tide of progress, and, in the present light, the conditions of the industry give every reason to presume that 1912 will be no exception to the rule. We need scarcely remind our readers that the Show which opened its doors without formal ceremony yesterday morning is the eleventh of the series organised by the Society of Motor Manufacturers and Traders. It is ancient history how the Show, which has become one of London's principal annual functions, has evolved from the small beginnings of the Crystal Palace Motor Show of 1902, when the industry had hardly begun to feel its feet and the Society itself was but an infant organisation, with small promise of development into the powerful body it has since become. Then, ten years ago, it was even doubtful if the motor car was destined to keep its place upon our roads. Still crude in its design and unreliable in its performance to a degree that threatened its extinction by sheer inability to conform to the requirements of a road vehicle, it had, in addition, to contend against the inertia of public opinion in the mass, which was frankly hostile to its development. But it was at that time, although even those most intimately concerned with its fortunes almost failed to realise it, practically at the turning-point of its fortunes. Constructionally, it advanced by leaps and bounds, until in a very short period of time it became at least reasonably reliable. Then, in the following year, came the passing of the Motor Car Act which, although it was viewed with the gravest misgiving by those associated with the movement, has on the whole worked none too badly, particularly in the matter of the removal of the absurd speed restrictions of the older laws. So, year by year, the vehicle and the movement have progressed hand in hand until we see the culmination as expressed by the Show. In the meantime, although the record has been one of general progress, there have been anxious times, and the industry has passed through periods of depression and anxiety, but, if we are to trust the indications of the moment, that is all past and done with, and the industry has almost settled down to a normal and steady state of commercial prosperity. In a word, it has evolved from the comparative chaos that distinguished it during the opening years of the century and has now become an established feature of our industrial life. Truly, the more the subject of the rapid development of automobilism is regarded the more wonderful does it seem. Looking back to the Show of ten years ago, and remembering of what it consisted and the comparatively little progress the cult of the car had made, it is hard to realise that all this change has in truth taken place within a decade. Then we who prophesied that the motor would in time supplant the horse were regarded as dangerous lunatics—dangerous in every sense in that we advocated heretical doctrine, and doubly so because we dared to use on the King's highway a vehicle which was publicly regarded as a menace to the lives and limbs of the lieges. Then there was something of a distinction—qualified in a way, it is possible—in being connected with automobilism at all, however remotely, while the man who understood however little of the why and wherefore of the car was a species of demi-god among his fellows. But ten years have changed all that. The horse is a back number; the man in the street has become so familiarised with the car that he looks upon it as one of the common-places of life; the comparatively small band of enthusiasts which represented the motoring community has been replaced by—or has grown into—a

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body so vast that nearly a hundred thousand are enrolled in the membership of our two leading bodies alone.

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The Trend of Design.

In years gone by, by far the greater interest surrounding the Show lay in what was to be expected in evolutionary design. From year to year things progressed so rapidly that to own a car of the year before was to be hopelessly left behind in the race of modernity, and the self-respecting motorist would as soon have confessed to it as he would have appeared in the Royal enclosure at Ascot in flannels. Nowadays, however, that has all been changed, and while it would be going too far to say that the car has become standardised, it is nevertheless true that in its main essentials the design has been settled until such time as some new discovery in engineering science or in metallurgy makes its appearance to upset all our accepted ideas of correct practice. But while this is so, the general trend of things is all towards improvement in detail and, even though the car to be seen on any particular exhibitor's stand may not appear to the layman to differ in any degree from that which he saw on the same stand last year, examination will undoubtedly prove that it is in many ways a better and more efficient vehicle. There is distinctly manifest a trend in the direction of greater accessibility of such parts as are likely to need periodical adjustment and a distinct movement towards making those adjustments simpler to carry out. Then we have the beginning of a most important movement, that towards the standardised fitting of some form of engine-starting mechanism. In many respects this is the most notable feature of the year, marking as it does the passing of one of the most laborious and withal dangerous operations connected with the running of the car. Another most notable development will be found to be that of electric lighting systems for use on the car. Electrical science has developed very rapidly in the direction indicated, and it begins to look as though the real future of car-lighting lay with electricity. It has certain manifest advantages over the older systems which are bound to influence the car owner who sets convenience and comfort high in his list very powerfully towards it. However, enough has been said to indicate that the wheels of progress are not by any means at a standstill, so we will leave the subject of the Show for the time being, wishing to the industry a prosperous and satisfactory week, and to our friends of the public an interesting and instructive time.

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London's Motor 'Bus Problem.

The question of motor omnibus fatalities is still occupying a great deal of public attention, and questions relating to motor 'bus traffic are taking up quite a lot of time in the House of Commons. Really, there seems to us to be very little more that can be said in connection with the problems arising out of the rapid growth of this form of traffic. The matter has been discussed, *pro et con*, in Parliament and the newspapers until most people, we imagine, must be getting rather tired of an argument which appears to lead no farther along the road to a practical solution. In Parliament, Mr. Kellaway, the Radical Member for Bedford, appears to have constituted himself the mouthpiece of those who would like to see drastic legislation, aimed presumably at driving the motor 'bus from the streets, for practically every day there appears from him a query on the question paper, asking for information on some point or other, until the Home Secretary must almost dread seeing him rise in his place. While we are content to credit the hon. member with the best intentions in the world, we must point out to him that he is committing the very mistake to which we have called attention in dealing with the problem of the cyclist—that he is suggesting that legislative action be taken with regard to only a part of the whole question. We should further like to point out that in every case of accident involving personal injury there must of necessity be two parties involved, one or both of whom must, presumably, be in fault. It is significant that in only three cases out of considerably over a hundred which have occurred during the current year have coroners' juries attached any blame whatever to the driver of the motor omnibus. Now, unless those juries were composed entirely of motorists or their kind—and we know that these bodies are not drawn from a class of the community which wastes much sympathy on the motorist—we must conclude that the victims themselves were mainly to blame, either through recklessness or nervousness. Let us say with all haste that we do not advance this in any spirit of callous disregard of unfortunate facts and figures, but this is a matter which must be argued out in the light of all the facts. We are just as much concerned as Mr. Kellaway himself in the reduction of the number of these terrible fatalities, but we must in fairness look at every side of the question. The police records go to show that the greater number of accidents happen in congested areas where speed is not high. That being so, what is the use of attempting to place further restrictions on the motor vehicle unless at the same time we can legislate the pedestrian out of his reckless or thoughtless habits? We have no wish to labour the point, but it all comes back to this same question of trying to deal in parts with something that ought to be tackled as a whole.

In a letter addressed to the Press, Mr. Kellaway quotes some very illuminating figures regarding the increase in the number of motor omnibus fatalities supplied to him by the Home Office. He points out in connection with these that, in 1907, there were 1,205 motor 'buses licensed in London, and the number of persons killed by them was 35. In 1908 there were 1,133 licensed omnibuses, and 62 persons were killed by them. The inference he appears to draw is that the driving of these vehicles had become more reckless in the meantime. Another view, and we believe the correct one, is that in 1907 the motor 'bus was a comparative innovation, and that pedestrians were extremely careful of the danger they appreciated as being very real. Familiarity, however,

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bred contempt of the danger, and thus pedestrian traffic began to take more risks, with the inevitable result that accidents were more frequent. We do not say that there is no reckless driving of motor omnibuses. Unfortunately, there is far too much of it, and we are entirely at one with those who would suppress it by the most drastic possible means. What we do, however, want to make quite clear is that there are many sides to the traffic problem, and not one only.

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Local Authorities and the Motor 'Bus.

It really seems as though the London motor 'bus were a sort of Ishmaelite in the land. Everybody's hand seems against it and, if people are to be believed, its hand is against everybody. The latest development in the relations of local authorities and the omnibus companies is that certain of the London borough councils have taken counsel's opinion as to the chances of a successful action against the companies for damages as "extraordinary users" of certain roads. Hornsey, for example, proposes to claim £3,000, and has approached neighbouring councils, asking if they are prepared to come in and share the expenses of fighting an action. In at least one case an affirmative answer has been returned, so it looks as though the matter will probably come to an issue before the Courts, unless some compromise is reached *via* a contribution by the companies in respect of the upkeep of the roads used by their vehicles. The latter course we do not think will commend itself to the omnibus companies, because of the tremendous possibilities it opens up for a general game of squeeze by local authorities. Therefore, as legal opinion—what a vista of costs from both sides does this protecting word open up—inclines to the belief that the authorities have a good remedy in law, it is more than probable that a most interesting test action will be fought.

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"Drunk and Incapable."

Mr. Plowden seems to have got into hot water again. In a recent case he dismissed a charge of being drunk brought against a taxi-cab driver, who, the police alleged, had not passed their tests for sobriety with that *éclat* which they consider to be necessary in these matters. The learned magistrate appears to have taken the view, sensible, as it seems to us, that intoxication is a matter of degree, and that a man might possibly have taken more drink than was exactly good for most folk, while he was not unfit to be at large at the wheel of a motor car. For this he has been soundly rated by no less a personage than Sir Victor Horsley, who goes to the other extreme and lays it down that it is absolutely necessary that every motor car driver should be a teetotaller.

We need hardly say again that we have no sympathy at all with the person who is *drunk* at the wheel of a car. He should most certainly go to gaol without being given the option of a fine, however heavy. But before he is sent to prison we want to know that he was actually *drunk*, not merely that he had had some refreshments. It may quite easily happen that a motorist who has been dining may happen upon a slight accident. The inevitable policeman appears on the scene, and it may be that the motorist is a little excited after the occurrence. The policeman, it is odds on, thinks he is drunk and arrests him. The police doctor is called in, sees, or more probably smells, that the motorist has not enrolled himself among Sir Victor's teetotal drivers, and certifies that he is under the influence of drink. He may or may not be "under the influence," but it is another and a more serious thing to say that he is so far gone in drink that he is a danger to the public. That is why we agree with Mr. Plowden that common sense and not physiological reasons should be the test.

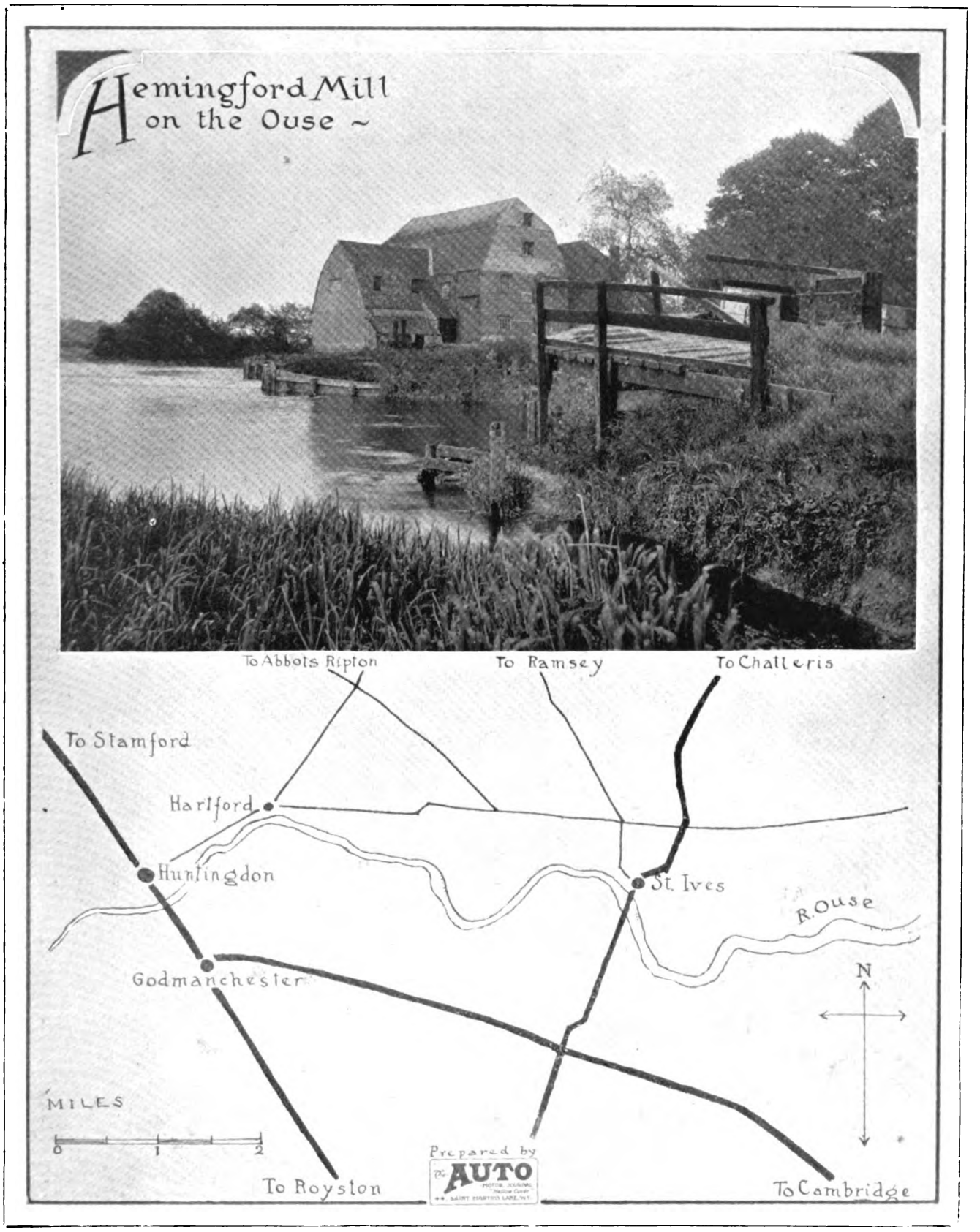
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What *are* We to do?

It is only a little while back that the agitation against the motor horn, which has more or less enlivened the "silly season," has died of inanition, and we have ceased to bow our heads in very shame for what we are—enemies of the peace of mind of the whole community—and now we have it suddenly brought home to us that our critics are all wrong and we, as motorists, have been right all along. For weeks it has been driven into us that the motor horn is an invention of the Evil One sent to torment suffering humanity for its sins, and the would-be considerate driver has seriously bethought himself of scrapping all his instruments of warning. It seems, however, to be just as well that none of us have gone to that length, for according to newspaper reports the police of Buckrose, which is somewhere in the East Riding of Yorkshire, recently developed what seems to us to be a grim sort of humour. At a sitting of the justices of this somewhat obscure place, quite a number of motorists were summoned and fined for having failed to give audible warning of their approach to certain cross-roads on the road from Scarborough to Malton. So far as the reports are informative, nothing in the way of actual danger was proved, but apparently the opportunity of mulcting the motorist was too good to let slip. We should certainly like to know more about these cases. In Art. IV, Sec. 5 of the Local Government Board Regulations (Use and Construction Order), it is provided that the driver of a motor vehicle "shall, whenever necessary, by sounding the bell or other instrument required by Sec. 3 of the Act of 1896, give audible and sufficient warning of the approach or position of the motor car." The crux of the regulation lies in the words "when necessary"; and the point then arises as to who is to be the judge of when it is necessary to sound the horn and when the precaution may safely be disregarded. Apparently the East Riding view is, that the local policeman is the best judge—which, to our way of thinking, is exceedingly dangerous doctrine, and puts a premium upon a new kind of police-trap. If it should meet with general acceptance among police and magistrates we shall never be safe for a moment.

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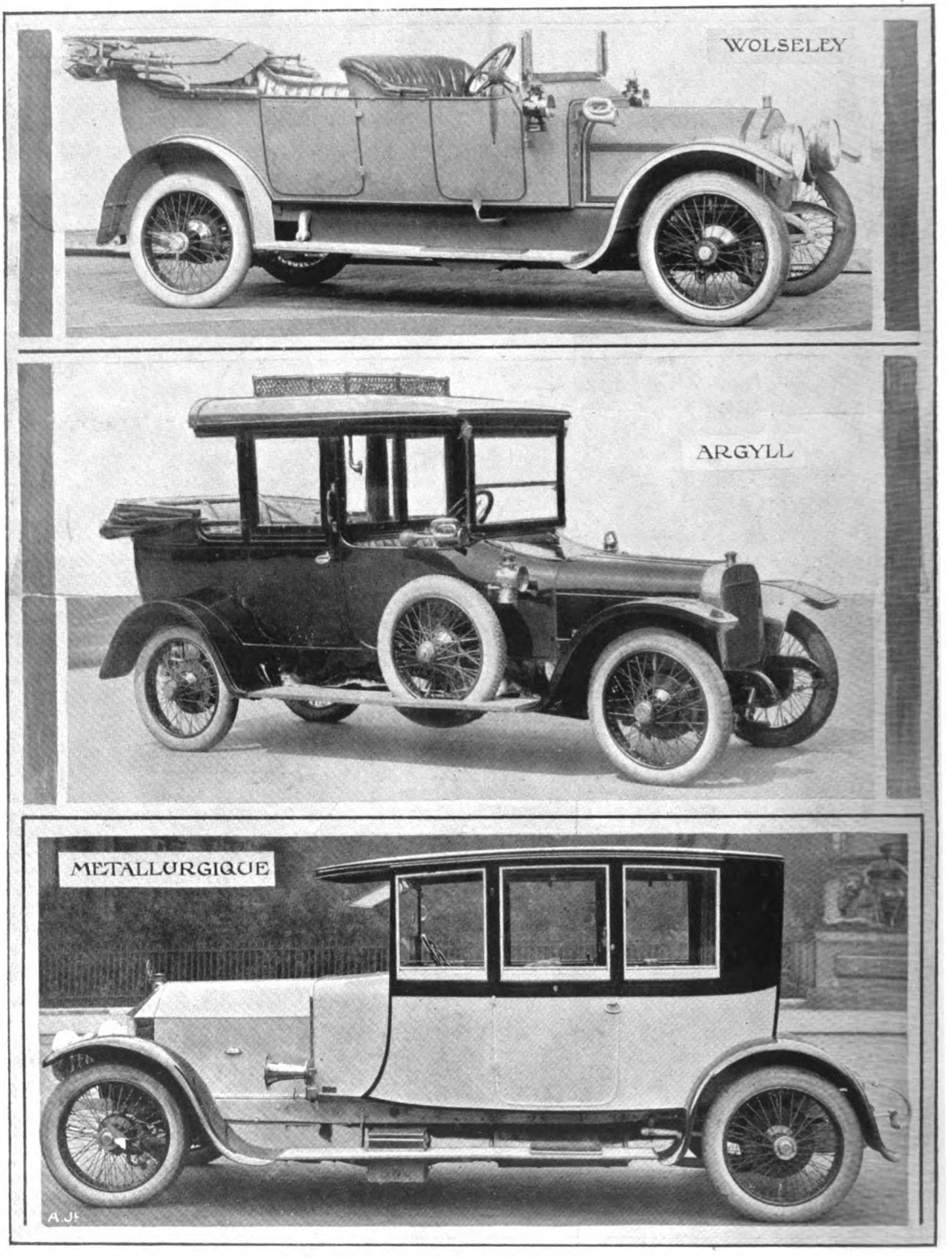
WITH THE CAMERA AND THE CAR.



HEMINGFORD MILL, ON THE OUSE, NEAR ST. IVES.—In this district there are innumerable opportunities for the motorist with a Kodak to bring home pictures equally beautiful to the above specimen, which was secured with a Kodak camera.

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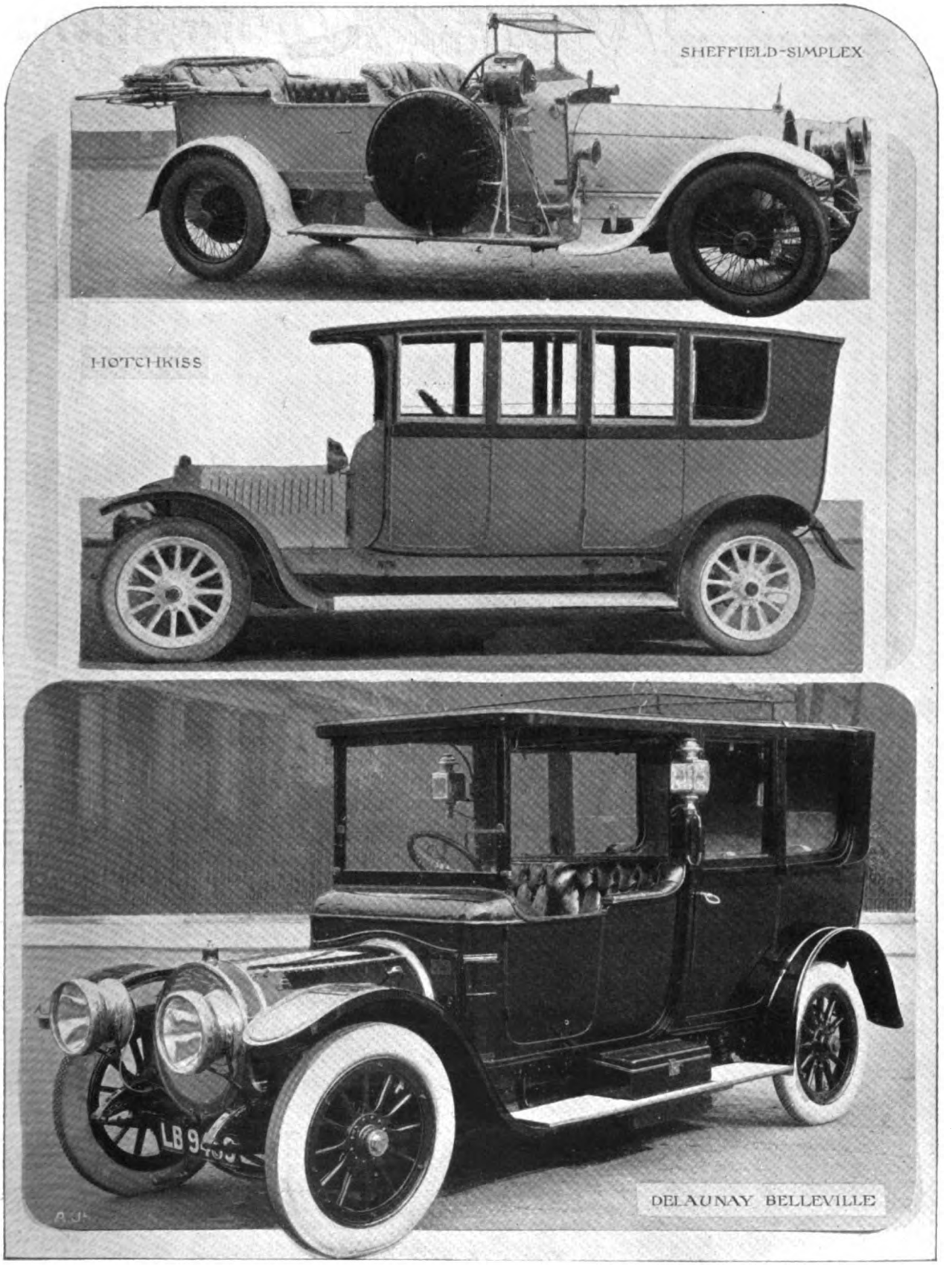
THE CAR REFINED.



THE WOLSELEY.—A perfect example of the open touring car.
THE ARGYLL.—A perfect example of the modern landaulette, with permanent roof extension.
THE METALLURGIQUE, WITH VAN DEN PLAS COACHWORK.—A perfect example of the saloon car.

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CARS COMMODIOUS.



The Sheffield-Simplex. The 20-30-h.p. Hotchkiss. The Delaunay-Belleville.

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OLYMPIA MOTOR SHOW 1912



FOR the eleventh year in succession the Motor Show is upon us. Olympia, Mecca of motorists, this year opened its doors on the 8th, simultaneously with the appearance of the earlier copies of this issue in the hands of those of our readers who, similarly, dislike waiting until the Saturday before being advised of the latest in cars. Prospective purchasers in their thousands are once more about to pay shillings innumerable and the greater entrance dues at the turn-stiles, besides those on the roll of the various clubs and societies whose membership badges, by admitting them to this one annual event, give sufficient justification in itself for their existence.

Again the crowd will divide, where the little boys shout "catalogue" in such a penetrating tone of voice, and will stream with provoking slowness down the aisles, to the strains of "selections" by the band of His Majesty's Coldstream Guards. Again we shall see the wily placard —on which the signwriter has "written" a week or more ago—hanging with an air of nonchalance on the car that it labels "sold." What an El Dorado for signwriters and electricians the Olympia Show must be, to be sure!

And the cars, what of them? Again we shall see the latest "simplexity" in chassis design and the latest "line" in coachwork—and the Press and the public will alike rejoice. Yes, a very fine thing is the Olympia Show, in its way, and although we might be better off without it from some points of view, we should be a good deal the worse for its absence in many other respects, so, on the whole, it is a very good principle to support what you already possess, and to make the most of it into the bargain. Olympia stimulates interest, and interest is the backbone of enthusiasm. When interest is stirred to the point of enthusiasm it means a boom year for the motor industry, and the Olympia Show does as much as anything to screw up the tension to the required pitch. The enthusiasm of to-day is, of course, a very different thing from the enthusiasm of yesterday in the matter of motoring; the simple and unalloyed excitement of the pioneer has passed. It has not been annihilated, for we see it recurring in all its vigour in the realm of flight, where just the same sort of interest that brought the motor car safely home through its early troubles on the road, is now supporting the winged steed in its early difficulties in the air.

To-day, the interest in the motor car is founded on the universality of its use. Modern civilisation is timed to such a speed that man wears out if he attempts to keep pace by going afoot through the world. The truth of the matter is that everyone in a certain station of life must have a car, and the more there are who possess them, the more there are who live on the border line of "wanting."

The car is not only a time saver, but it is the mind saver; and the mind, in these days, is the very machinery of life. Men simply cannot do the things they have to do in twenty-four hours if they have to hesitate "upon the manner of their going." A man walks out of his house straight into his motor car and it distracts him no more than would walking out of one room into the next. If he has a matter of importance on his mind he is not disturbed by the necessity of remembering that he must avoid being run over. He simply sits down at ease in his landaulette as he would in his study chair, and the next thing he knows is that he has arrived at his destination.

That is what the motor car does for the man of affairs, and the man who is not a man of affairs—greater or less—these days is a man of straw—and that's just all there is to it. Take this same man of affairs when he has finished his business, and what does the motor car do for him? It whisks him away into the country and puts clean fresh air through his lungs in a way that nothing else in the world save flying can possibly accomplish. He is able to visit friends who, formerly, were inaccessible, and he is able to explore country which, formerly, was unknown beyond the circle that he was wont to hunt. If he plays golf, he can get to courses hitherto untried, and, while he is playing, he can have his family or his friends brought leisurely out to the club house for tea. Why, it is almost impossible to think of a thing that we do that isn't in some way or another facilitated by the automobile—and, where would the man who doesn't own a car be, we should like to know, if it were not for the taxicab and the motor 'bus?

So when you go to Olympia you may pretend that you are only going out of curiosity to see the novelties, or that you are only going out of habit because long ago you used to follow the craze. But, if you think really seriously on the quiet, you know well enough that you are going because a motor car of your own is either a possibility that has already arrived, or a probability that is well in sight, or a bare chance that you hope some day will turn into a certainty. And, as you surge with that human tide to and fro in the great hall, you lap the shores of many a promised land whereon stand the objects of your desire. You look at them with interest and with envy, but, having inquired the prices, you sadly and, oh, so reluctantly, allow yourself to be drawn back by the ebb as it sets the other way.

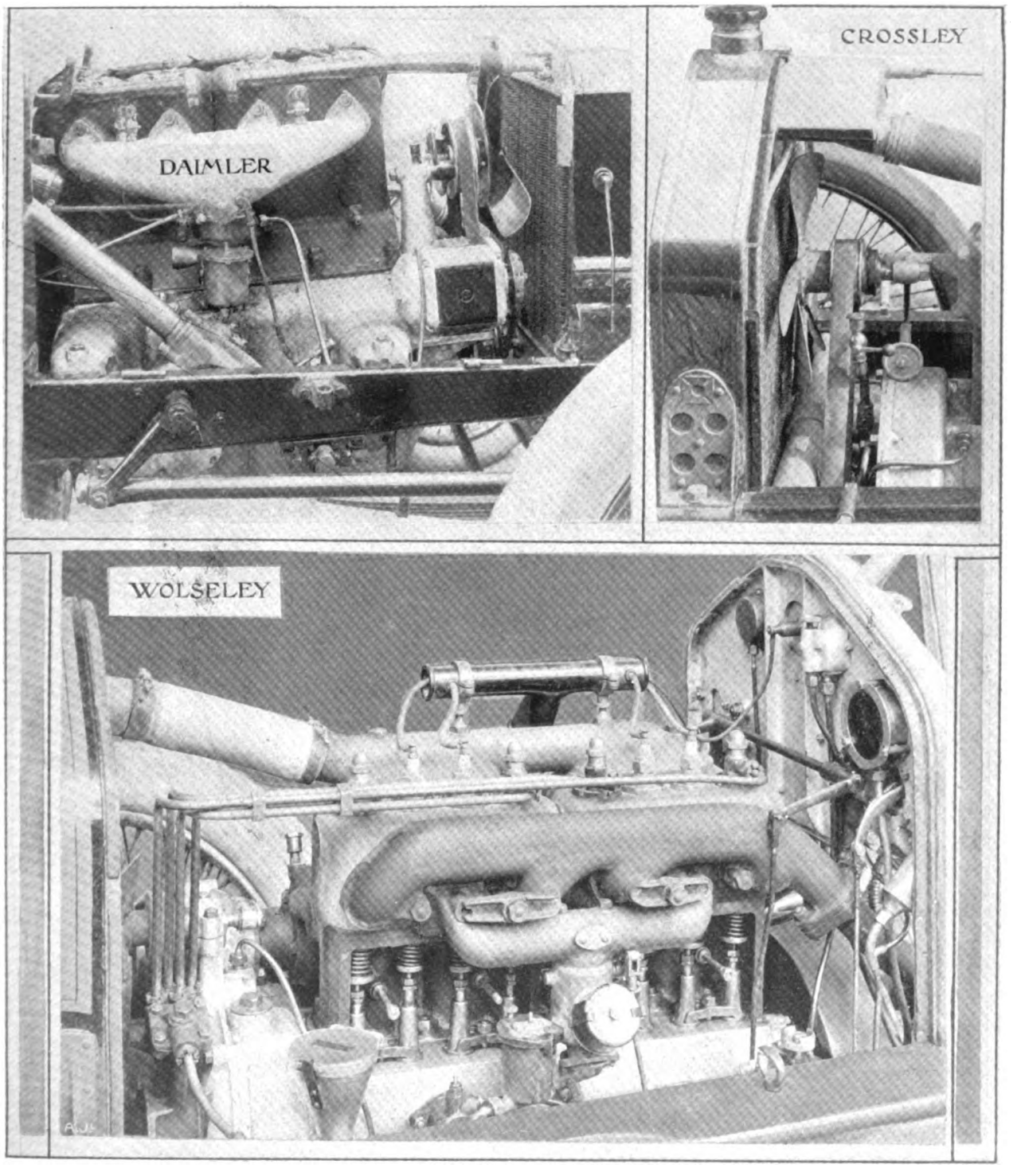
But each year some of the engineers in the motor industry set themselves the problem of bringing their cars more and more within the reach of your pocket and your requirements, and there comes a time, as you float aimlessly about with one eye on the clock and one on the door, with your strongest inclination towards the tea room, when you get washed up high and dry on a stand where is the very thing that you have been looking for all these years. The car is right, and the power is right, and the price is right; suddenly, with that intense quietness characteristic of things that happen in the mind, the whole aspect of your outlook on life seems to change. From a mere wanderer you become an explorer of the first rank. Tiredness and fatigue are mundane compared with the intellectual satisfaction of investigating the details of a chassis that you might actually buy! Heavens! how dull you thought those descriptions of cars and mechanisms that block the pages of the technical Press with uninteresting text, but what a change now! Off you go to the

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bookstalls and buy copies of every paper that you can find, just because they might have something to say about your wonderful find. You read in order that you may find a scribe who shares something of your own enthusiasm. Poor scribe! Undying enthusiasm! And this happens on every stand in the Show—or it ought to if the manufacturer knows his business.

There are, one way and another, a hundred and seventy

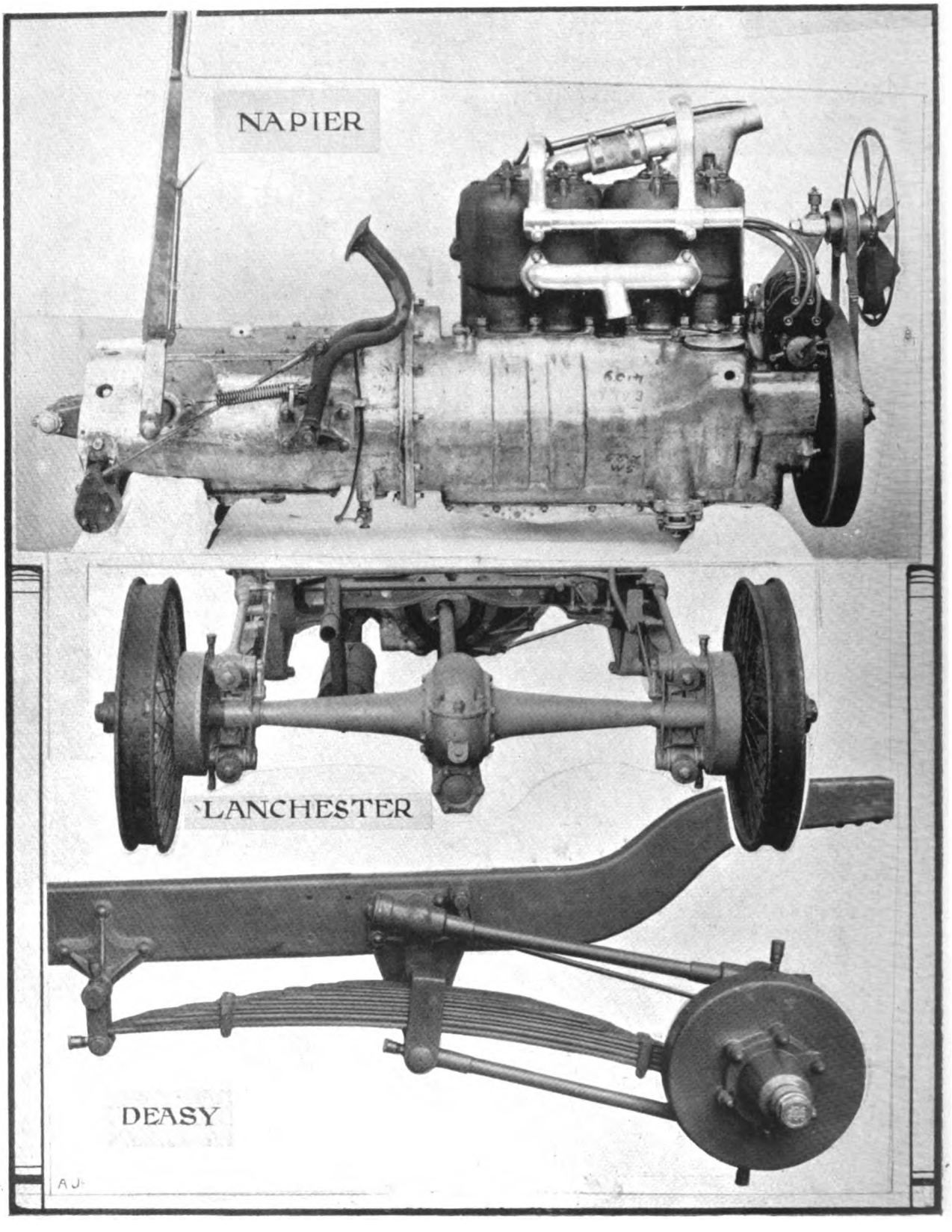
ENGINE DETAILS.



The C.A.V. lighting dynamo on the Daimler engine, the fan belt-adjustment of the Crossley, and the pneumatic starting mechanism on the Wolseley engine.

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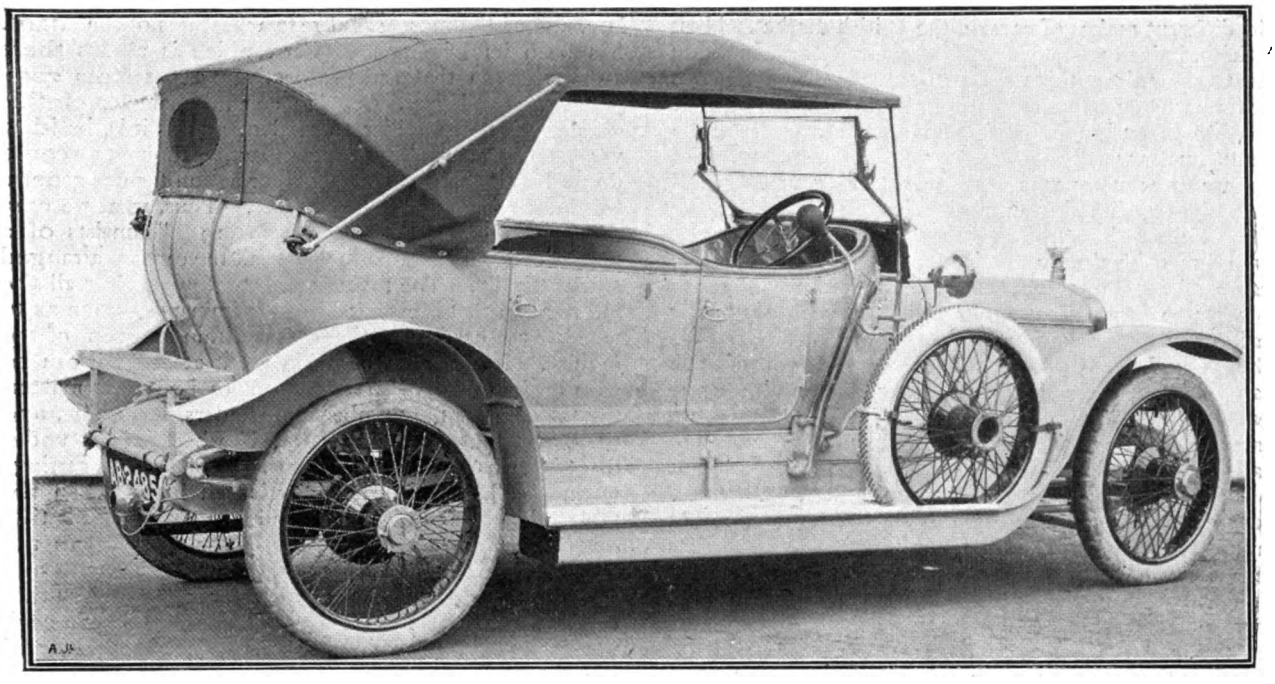
ORIGINAL FEATURES.

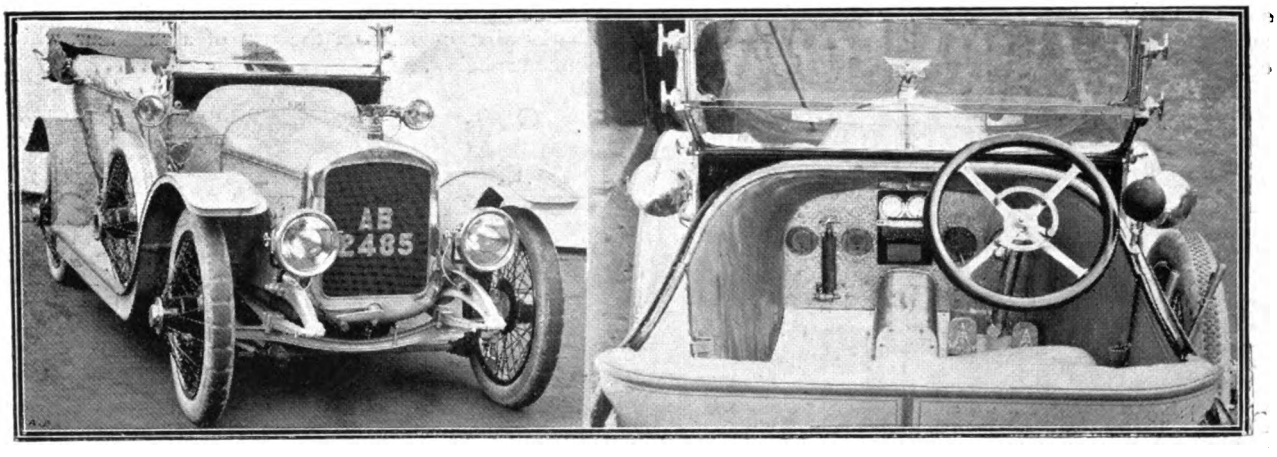


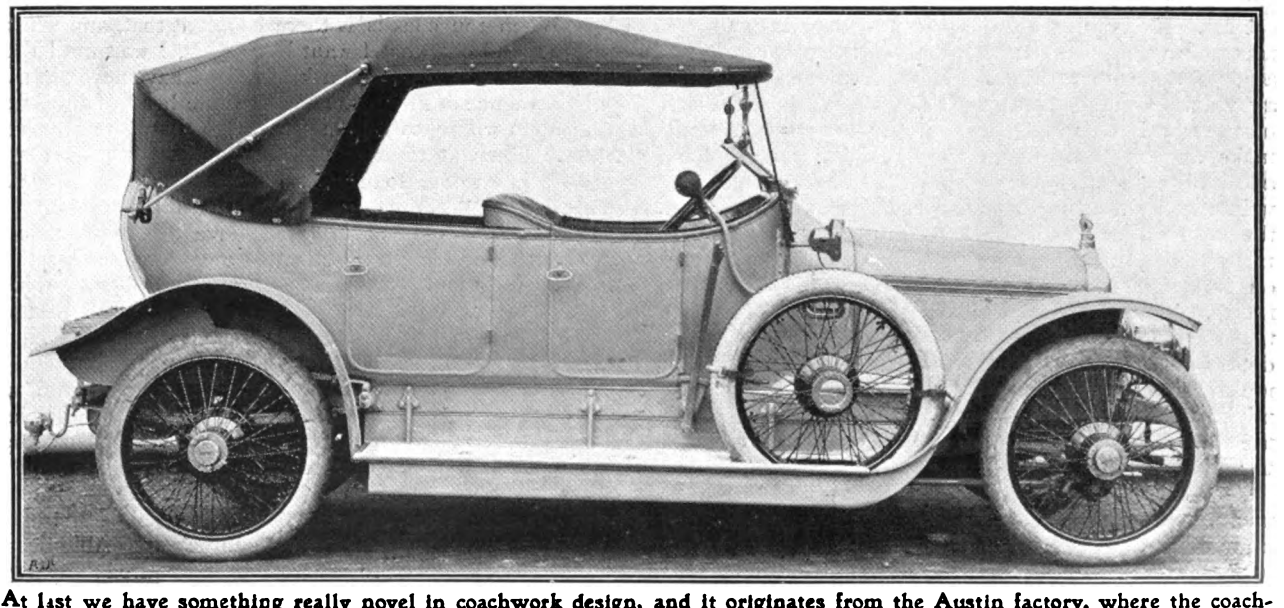
The unit system of construction on the 15-h.p. Napier, which has the fly-wheel in front. Below is seen the Lanchester worm-driven live rear-axle and the Lanchester suspension on the Deasy cars.

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NEW LINES IN COACHWORK.







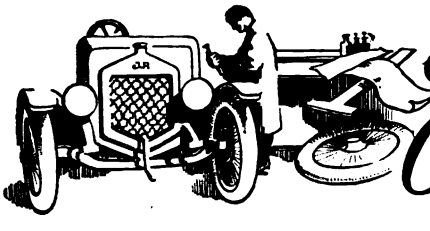
At last we have something really novel in coachwork design, and it originates from the Austin factory, where the coachwork is not even second in excellence to the chassis construction. The above photographs show a type of touring body that is a distinct departure in appearance from stereotyped lines without being bizarre, and is graceful without being fanciful.

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odd different makes of cars on the British market. Most of them, indeed we may say all of them, have something new to show about this season of the year. Olympia is the time when a happy minority exercises the privilege of kingship to enthrone itself upon a stand, but there are many equally worthy outside the pale of the court. So, too, are there many who for one reason or another find themselves excluded from notice in this particular issue of the Yellow Cover. It is not our fault; space, in our three dimensional universe, is unreal, save by the finite nature of its limitations, and the limitations of space in a single issue of a motoring journal seem singularly narrow on the occasion of the Olympia Show. We scheme and we plan to reduce a mountain of raw material into a molehill of finished product, and to make gems out of stones in the process. Needless to say, we cannot satisfy everyone, we have done our best, and the reader will find in this issue of the AUTO. some attempt to illustrate car design in a manner that has, we believe, some justification for being described as unique. At any rate, we believe that what our pictures and sketches were intended to show, they do show; notwithstanding the fact that the size of a page of this paper is not a quarter of the size of the originals of the pictures that it contains.

At this time of the year, too, it is our practice to give some sort of a general list of the cars that will be on the market for 1913, and we have made many attempts to confine the information within a reasonable space. Of late, one of the most useful regular features of the AUTO. has been its Directory of Cars, which is always there every week so that the prospective purchaser can compare prices and sizes. As the general character of this directory is now familiar to readers, and as it is, besides, very comprehensive and very compact, we thought we could do no better than prepare the information for our general list in very much the same way. Thus, what we may describe as our "Buyers' Guide for 1913" consists of a narrow continuous table in which all the cars are arranged alphabetically. The table, it will be found, gives all the information that is essential to a preliminary decision as to whether the car in question comes within the scope of the inquiry. If price is the main point at issue, it can be seen in the table. If power is a more important matter, the table shows the number of cylinders, the rating, and the dimensions of the engine. If wheel-base is under discussion as the main factor in comfort and carriage work, the length of each chassis will be found in the table. There are a hundred and one other details that *could* be given about a chassis—but space does not permit of their inclusion, nor are those other details any longer of real importance to the preliminary inquiry that this particular table, like our permanent directory in each week's issue, is intended to assist. For the rest, and speaking still of ourselves, our readers will doubtless peruse with much interest and some profit the salient remarks that come from the pen of a chauffeur, which commence below.

What a chauffeur expects to see at Olympia.



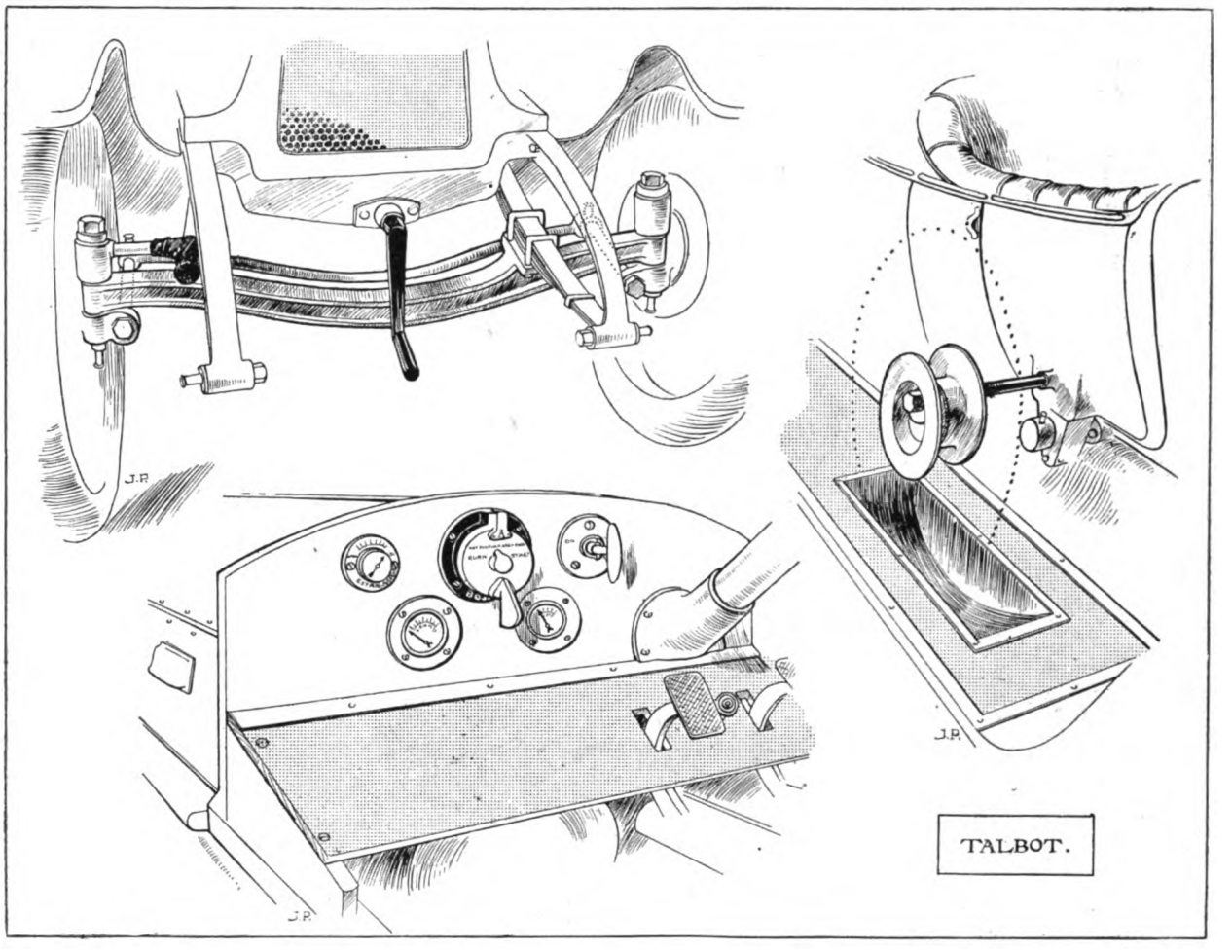
WHAT is good for the chauffeur is good for the master. I may be prejudiced, and my master may not be particular; but, the fact remains that *I* have to drive the car. Every year I go to Olympia expecting to see many of my pet ideas materialised, and every year I find a few of them have come to life, but I always have to go away disappointed about many things. Such is the way of the world, I suppose, and in the long run it must make for progress. Even the Press has its grumble, and it always amuses me to read the comments that are written as soon as Olympia has *closed* its doors. From the crop of articles, both lay and technical, I gather many things, including the views of various "authorities" on how the Motor Show could be improved in the future. They make me think that what I *might* expect to see at Olympia would be salesmen who knew the details of the chassis they try to sell. They also lead me to believe that the wonderful main hall, wherein the mightiest of the great are staged, *could* be a place wherein the ventilation would improve as the afternoon wore on to night.

As a chauffeur, I have no fault to find with the management of the Show proper; if I stay there all day it gives me a headache, but it would take more than an improvement in the ventilation to cure that. If I seek information at the stands I do *not* enquire of the salesmen with the striped socks. Our contempt is mutual, the difference exists in its expression; he may show it and frequently does, I may not show it but occasionally do. When the chassis is there I look at that, and when I cannot find out what I want by looking, I wait until the "boss" is disengaged and ask him, for I have never, in all my experience of motor shows, found the head of any firm other than willing to tell me anything that I wanted to know. They, at any rate, seem to realise that it is we chauffeurs who can do their cars credit in the owner's eyes.

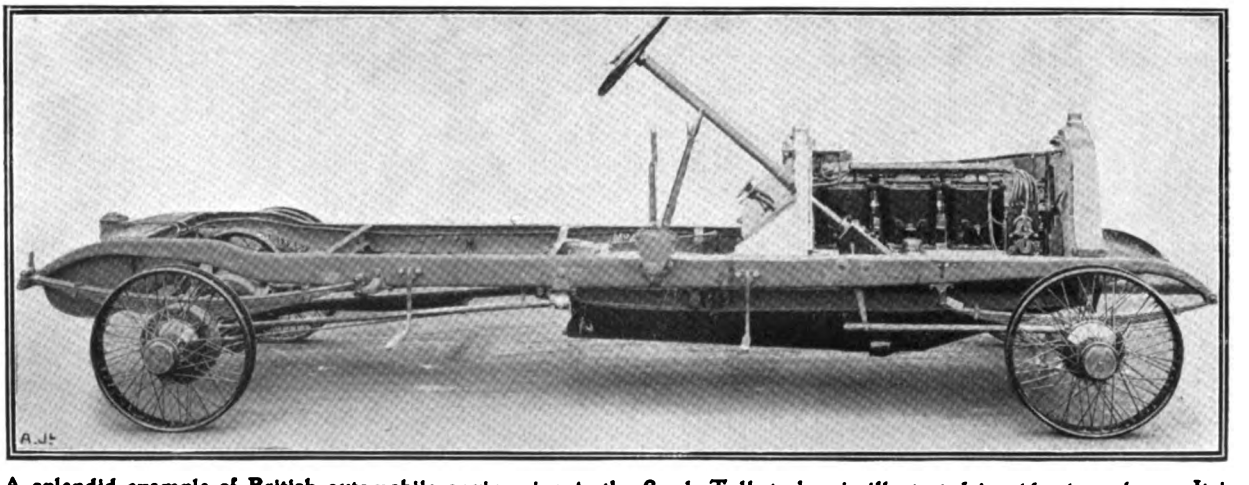
And, this makes me think that something more might be done for the chauffeurs who have to stand outside minding their cars while their owners are seeing the Show. I do not think any owner would object to his man going in, if the car could be left in safety. In any case, some sort of a shelter would be a godsend, seeing that the weather during Olympia week is so frequently wet. A shelter for chauffeurs outside the hall, and in communication with the interior by telephone, would be an attribute of Olympia that would be welcomed by everyone. I believe that the benefit of such a thing would be appreciated, especially by many lady visitors who, I notice, have to wander about the slushy streets before they can find their cars which have probably been ordered by the police to proceed some hundreds of yards or so down a side road.

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SOME TALBOT DETAILS.



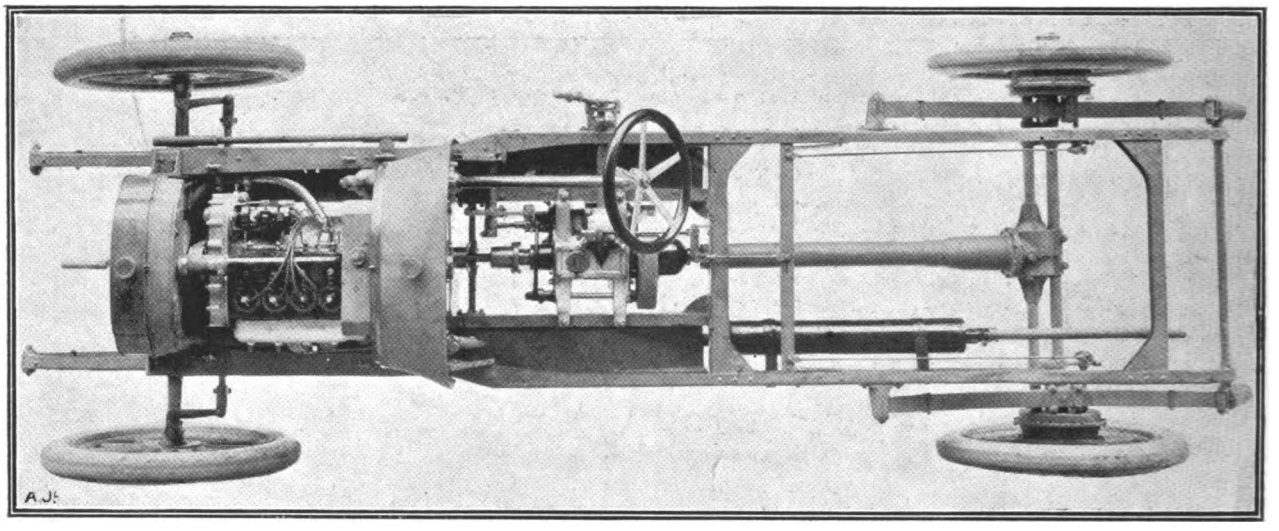
The above sketches show some of the modern details on the Talbot cars. The front axles this year have ball-bearing steering pivots. The aluminium dashboard has been re-designed, and a very neat symmetrical arrangement of the various instruments has been devised to go with it. Another very neat detail on the Talbot cars is the method of steadying the spare wheel in its tray by a bracket projecting from the change-speed lever quadrant and passing through the hub. This bracket does not carry weight, and therefore it need not be made very strong. Even when the wheel is not in place it is not an unsightly fitting.



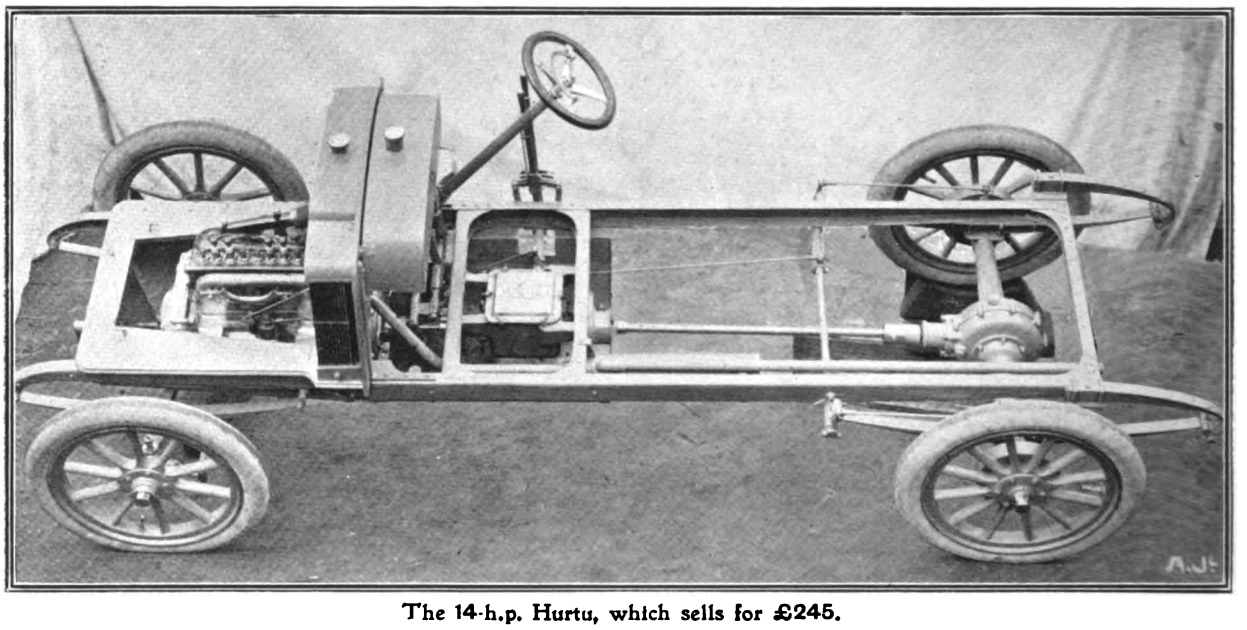
A splendid example of British automobile engineering is the 6-cyl. Talbot chassis illustrated in side view above. It is also a car that runs beautifully on the road, and is, in fact, one of the pleasantest machines to handle that one could wish for.

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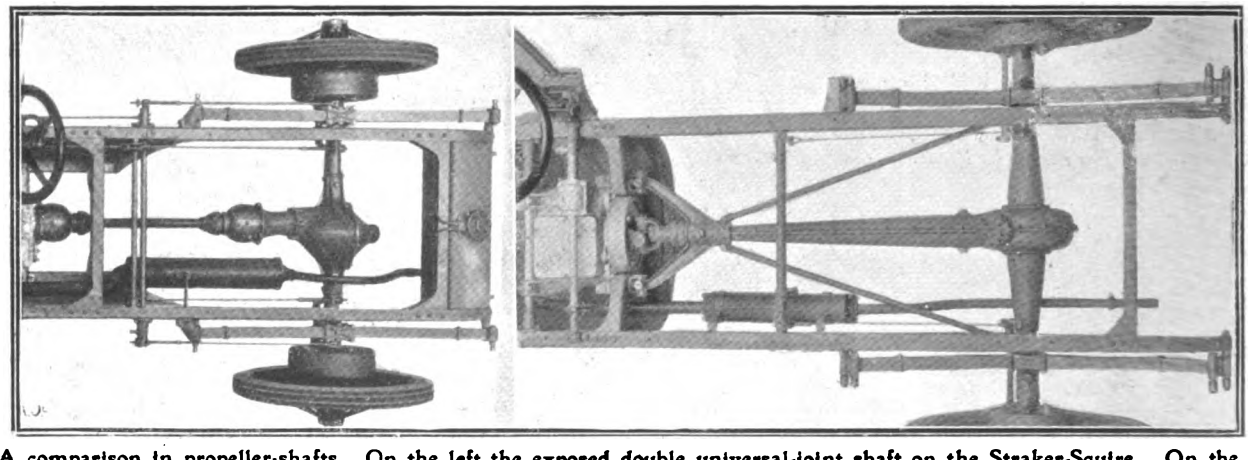
SOME CHASSIS PLANS.



The Chenard-Walcker. Note the unique axle with the pinion gearing in the hubs of the wheels.



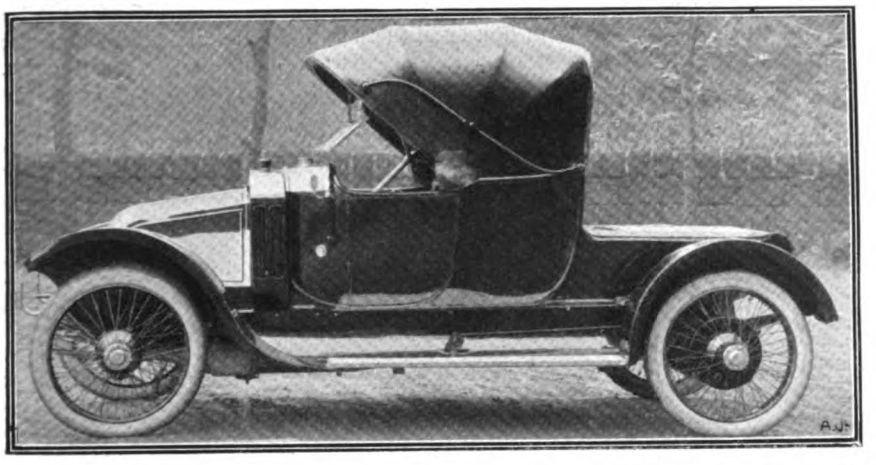
The 14-h.p. Hurtu, which sells for £245.



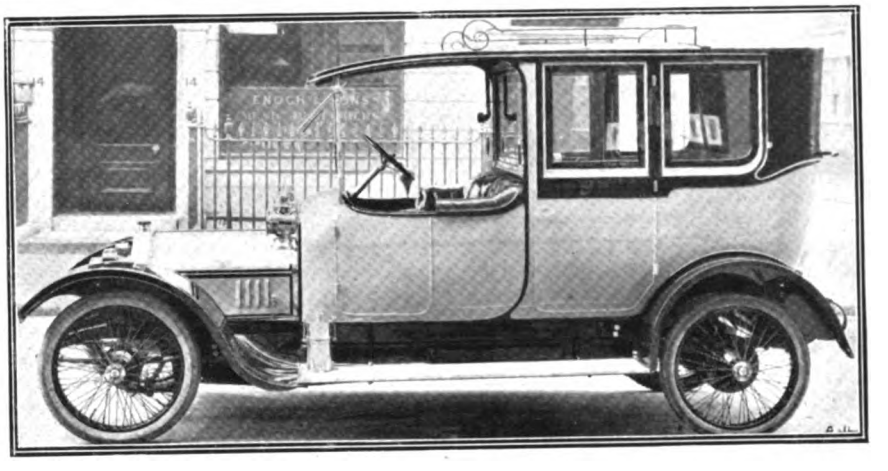
A comparison in propeller-shafts. On the left the exposed double universal-joint shaft on the Straker-Squire. On the right the enclosed shaft on the Stoewer, which is a particularly interesting design.

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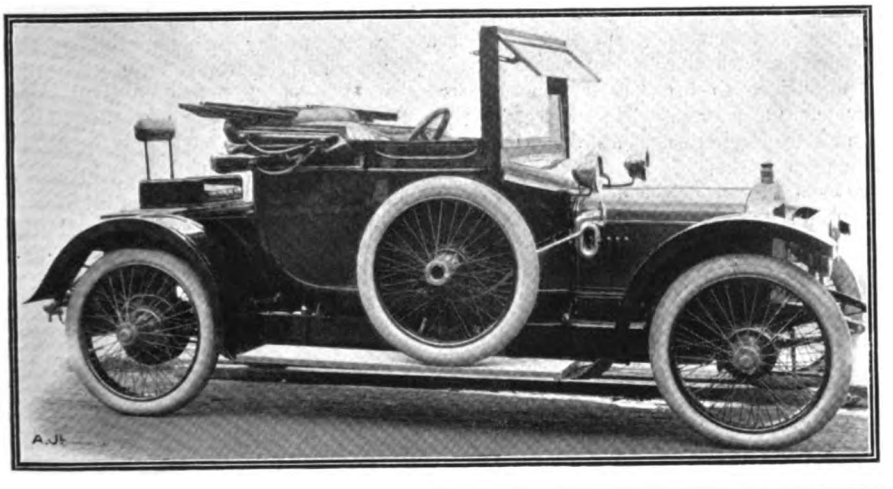
SOME FAMOUS "FIFTEENS."



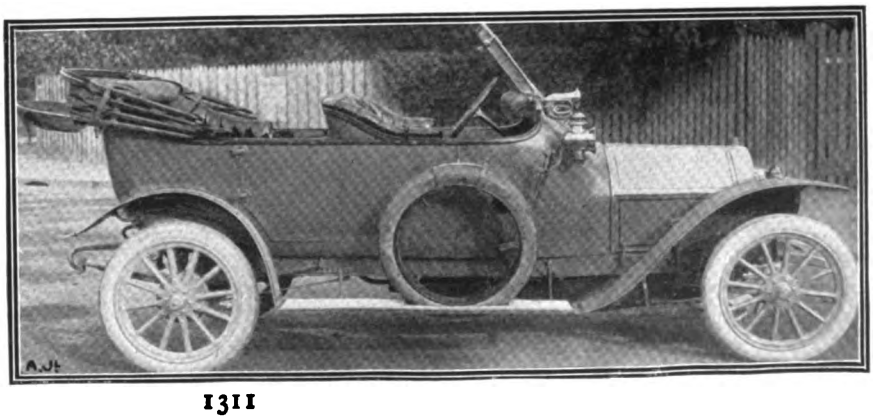
The Arrol-Johnston, a famous "fifteen-point-nine," here illustrated as a smart doctor's runabout.



The Crossley, a famous "fifteen," here illustrated as a beautifully finished limousine.



The Straker-Squire, a famous "fifteen," here illustrated as a landaulette-*coupé*.



The Vinot, a famous "twelve-sixteen," and one of the first cars of this class to be sent over to England from France.

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Taking it all round, I shall look for still greater accessibility in the cars at Olympia. I do not by any means agree with those who pretend that cars nowadays are well nigh perfect, because I know too well that they are far from it, and I also know that this fact is fully appreciated by the manufacturers. If this were not so, there would be no need for the expensive laboratories and experimental shops with "no admittance" on the doors, that are kept so busy all the year round experimenting with almost every part of a car's anatomy. But if you want to see real accessibility it is not sufficient to have a look at the stripped chassis that stands resplendent in the centre of a firm's exhibit and where you can get at every part as easily as if you had them spread out before you on the work-bench. Go over to the corner of the stand where you find the complete car and you will find quite a different proposition. Scuttle dashes, floor-boards, mud-guards and steps make an enormous difference, which I regret to say is not appreciated by the designers as much as it might be. If you compare the complete car with the polished chassis for accessibility perhaps you will find the reason why you found it such a job to take up your brakes last summer when it had appeared so simple and easy at the previous Olympia Show.

As to the size of the cars and their power generally, I sincerely hope to find a smaller number of those four-cylinders which have an engine of almost diminutive bore. My own experience, and that of many of my friends, with these little engines is not entirely satisfactory, and I am ready to admit that this is only to a very small extent the fault of the manufacturer. Indeed, whatever blame may be attached to those connected with the supply of the car, should be laid at the feet of the salesman, who, for reasons best known to himself, leaves the buyer in the belief that his sixty odd millimetre engine can do forty an hour and hardly ever wants a change of speed. This is all well and good; the car can do it on the trial run and is none the worse for it, but these test runs consist to a great extent in the performance of more or less abnormal trick driving, with the result that the employer expects his chauffeur to do exactly the same thing in every-day service. Of course, the car is overloaded and overdriven and soon begins to give trouble, especially when it is a cheap make. I know that it is quite impossible to make a cheap car good; if it were possible someone would have done it long ago, but we are still waiting. At the best you get value for money in your car, and the chances are that you get better value in an expensive car than in a cheap one.

This is my experience and that of every chauffeur of experience with cars and the work they have to perform in ordinary service.

On the other hand, I am not entirely satisfied with the really big cars, those of over four-inch bore. If it is considered what enormous progress has been made with the 80 mm. engines, I must say that the development of really high-powered engines has not kept pace with it. Whatever one may say and read in the papers about scorching, people are still fond of speed, the unfortunate part of it is that we chauffeurs get the blame. However, I believe, we must grin and bear it, but employers should not be surprised if one day they find that the proverb of the dog and the bad name comes true. Really big engines are still wanted for long tours, where they have to pull a large number of passengers and a good deal of luggage and maintain a good average speed over all kinds of roads. I firmly believe that designers would do well to devote some of their ability to the development of high-powered engines.

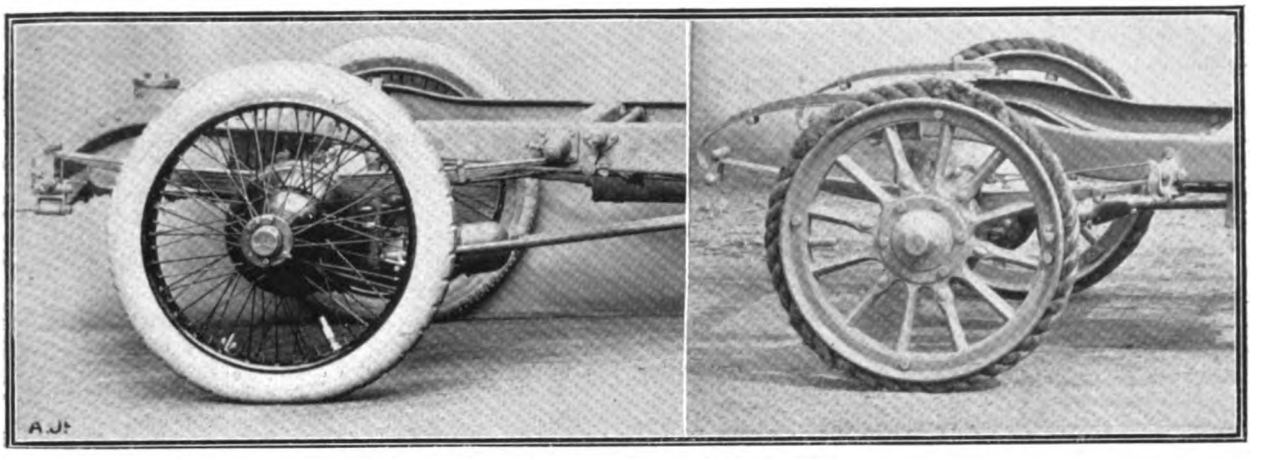
I can quite realise that there are difficulties and also that the engineer's goal is lightness in construction, which means high revolutions. A small engine is light and it develops a lot of power when it turns fast. That the performances some firms have put up at Brooklands with small engines are simply extraordinary, there is no denying, but, all the same, personally I am not very fond of driving a small engine, and my own conviction is that the car owner who can afford it will in the long run gain most satisfaction out of a fairly big engine. I was very interested, too, in some deductions made in this journal a few weeks ago from the trials of various cars made at Brooklands where it was shown that the cylinder capacity of very small engines is not nearly so efficient in power production as an equivalent amount of cylinder capacity in a big engine. By this I mean that when you take gear ratio and size of tyres into account and consider how many revolutions you have to do to a mile and when on the top of that you take weight into account, and consider how many ton-miles you do to a litre of cylinder volume pumped out by the piston, you find that the very small engine does not show up very favourably against the larger engines. In fact, there is a loss somewhere, and that is just what I always feel when I am driving these tiny cars. All the same, I quite admit that the small car, as such, is the proper thing for the man of moderate means, but I cannot for the life of me see why the small car has got to have such a small engine, if only the said man of moderate means will realise that it is the way he uses the car that costs him the money.

Look at the American cars, how often do you find a very small engine among them? There is scarcely one, yet they are cheap enough in all conscience, and they are very pleasant to drive—whilst they last.

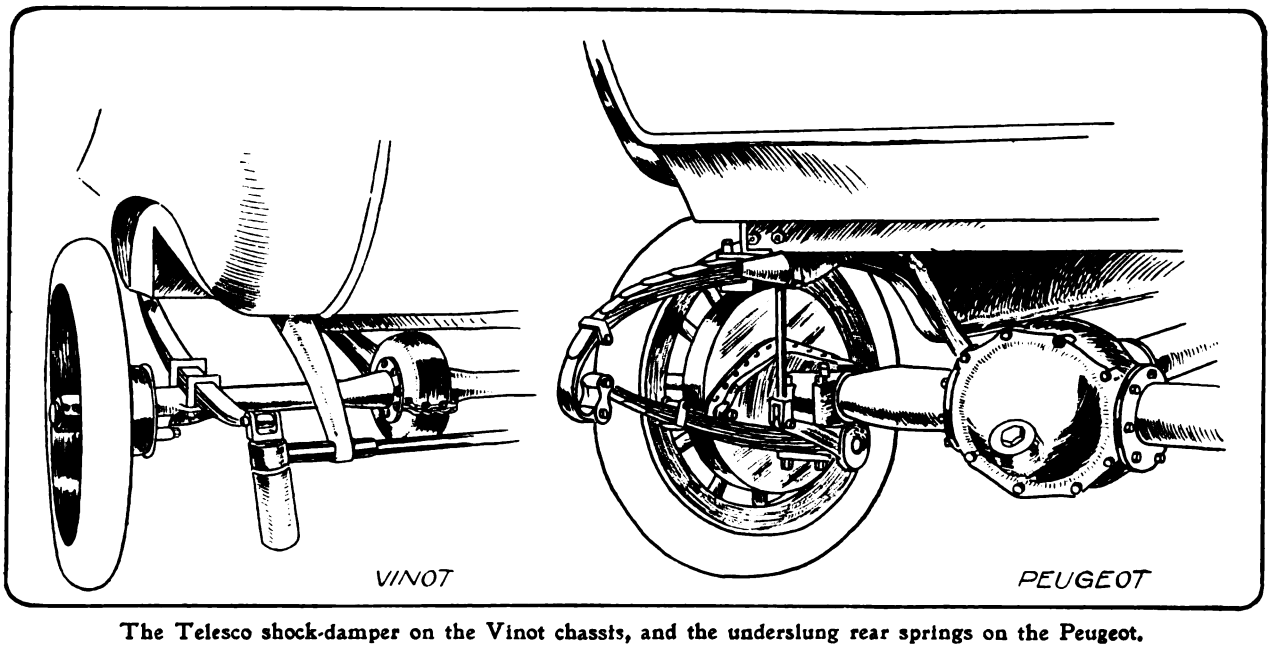
If I offer a few suggestions on engine design I will readily admit that I am not quite unbiassed. My views on this subject are based on my own experiences and those of other chauffeurs and I am afraid they are somewhat opposed to what is generally called latest practice in engine design. Thus it is that I have never yet been able to bring myself to like monobloc castings. I prefer cylinders in pairs, or better still, cast singly, not merely because the smaller units are easier handled and replaced in case of damage, but I have observed that monobloc engines are much more liable to carbonise than engines with smaller cylinder units. I have failed so far to find a plausible explanation for this phenomenon, but it remains a fact nevertheless. We never used to have trouble with carbonisation in the old days, and even if there was a certain amount of deposit it did not make much difference in the running of the engine. Now I notice that most of the carbonisation trouble in modern high speed engines is confined to monobloc castings, and that engines with smaller cylinder units keep quite clean however fast they may run. My own experience in connection with this is the outcome of long practical acquaintance with various recent models, while a friend of mine has an Austin, one of the few cars now built with separate cylinders, which is quite free from deposit, although he, too, has another of similar size with a monobloc engine, which has to be cleared out every two or three thousand miles.

It may be that the water space has something to do with it, because, as far as I can see, the argument put forward publicly in support of the monobloc principle is that it reduces the bonnet length, and if you reduce

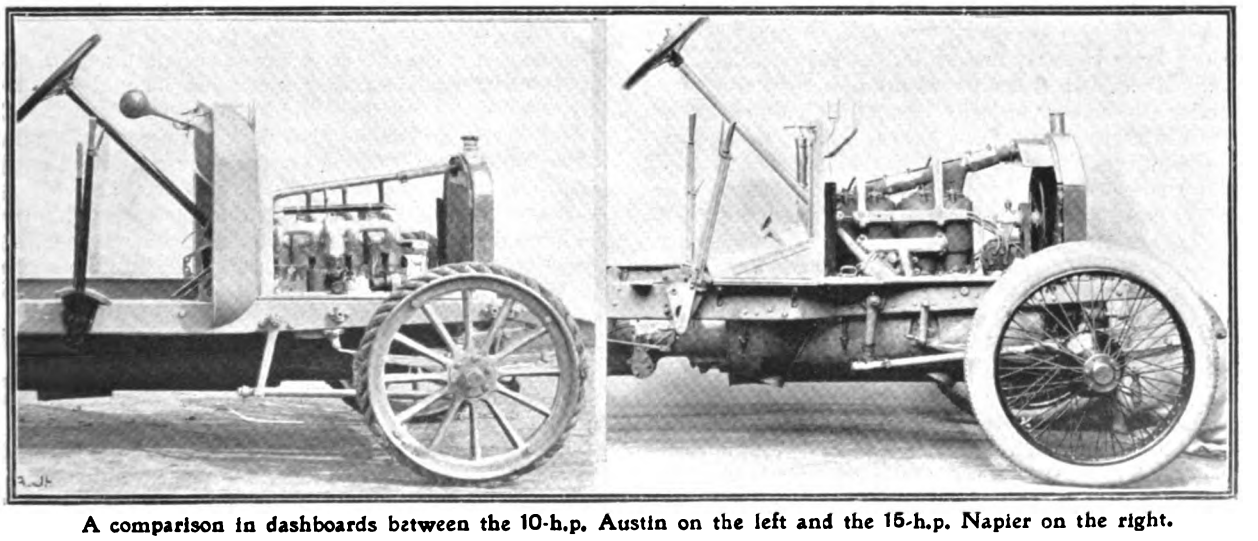
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Three point and three-quarter elliptic spring suspension as exemplified on the 15-h.p. Napier and the 10-h.p. Austin chassis respectively.



The Telesco shock-damper on the Vinot chassis, and the underslung rear springs on the Peugeot.



A comparison in dashboards between the 10-h.p. Austin on the left and the 15-h.p. Napier on the right.

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the bonnet length for an engine of a given bore it seems to stand to reason that you must also reduce the water space between the cylinders, for I have never observed that engines with their cylinders cast separately have been other than as compact in their overall length as they could be made. It seems to me, too, that this reduction of overall length must adversely influence the size of the bearings, and, if all I hear is true, there should soon be a boom in the white metal trade on account of the many new bearings that are wanted in those monobloc engines where there is not enough room for bearings large enough to last more than a few thousand miles.

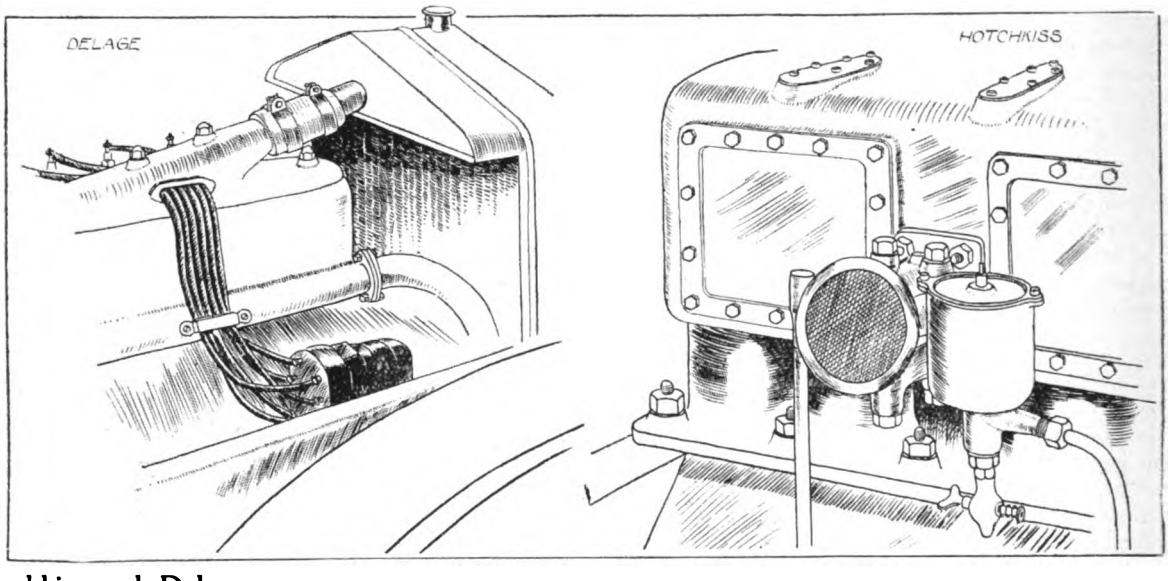
Another point where I differ with the tendency of motor design is the boxing-in of valves. I cannot find the least difference in the noise between engines with covered-in valves and those whose valves are open. And I much prefer the latter on account of the greater accessibility of the valves. Modern high speed and "high efficiency" engines want their valves seen to more frequently than the old large capacity motors if best results at all times are aimed at. It therefore seems a step in the wrong direction to make the valves more difficult of access, especially as the valves on either end of the castings are often very difficult to remove single-handed. The only factor that speaks in favour of valve cover-plates is the cleaner appearance of the engine, and some tendency to keep dust from the tappet guides. But, where the valves are boxed in, it should at least be done in such a way that it does not interfere with their accessibility.

Speaking of the appearance of engines brings me to another point, and rather a sore one too, from the point of view of the chauffeur. Comparatively few designers seem to care one iota, whether an engine keeps itself clean or not, with the result that no provision is made to prevent the escape of oil out of the end bearings and especially the tappet guides. Quite apart from the fact that this waste of oil is an item of some expense to the owner, it creates a good deal of entirely unnecessary work for chauffeurs who take an interest in the smart appearance of their cars. Improvements in this direction would therefore constitute a step in the right direction. To find out this particular point it will, of course, be necessary to go outside the Show and have a look at the engines of the trial cars.

Curious to say, the very part on the engine which in the early days was a continuous source of trouble, however well it was looked after, nowadays is about the most perfect piece of mechanism to be found on a modern car. I am speaking of the ignition. What better do you want than a high tension magneto like the Bosch? Now that this has been brought to its present state of efficiency and reliability, I do not think that anything is gained by trying to convert it into a lighting dynamo, and then trying to excuse half a hundredweight of metal by saying that it will start the engine. It only complicates matters.

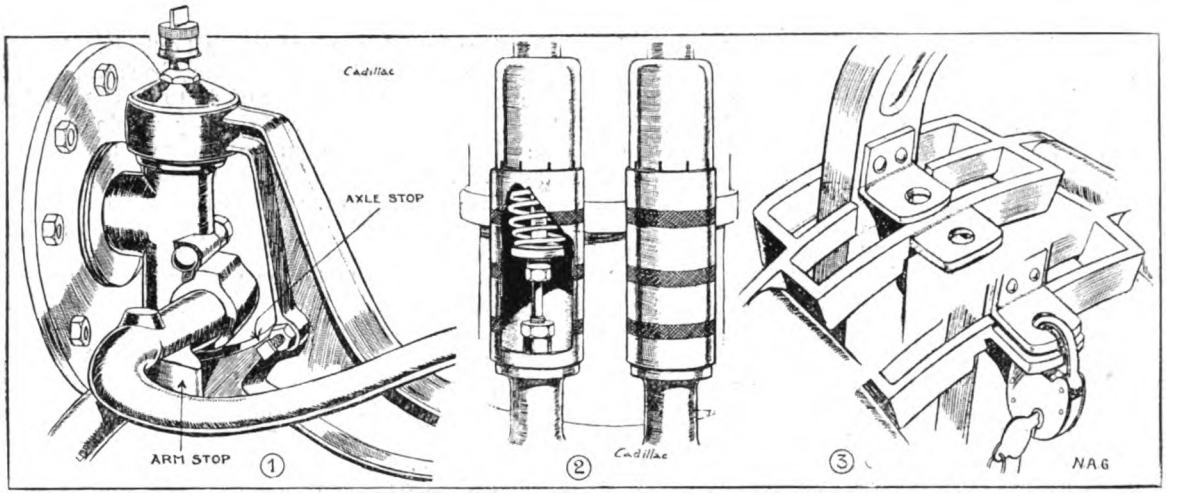
Excellent as the magneto itself undoubtedly is, its mode of fixing often leaves much to be desired. To my mind it is not so very essential that you should be able to get at every part of it *in situ*, but it is absolutely necessary that you should be able to remove the magneto bodily, and to replace it without difficulty, and without having to re-time it. An engine fitted with a good magneto nowadays needs no auxiliary ignition, not even for starting purposes, and for this reason I consider even those dual systems which are embodied in the magneto as quite unnecessary complications. They very rarely start an engine on the switch, and if anything goes wrong with the magneto drive they are as useless as the magneto itself would be in such a case. People who don't want to crank their engines should have self-starters fitted, and looking at this subject carefully I don't see any reason why any engine should not be thus equipped.

Last year we were told that every make of car would have a self-starter by this time, but how many do we find? Not two in a hundred. I shall look with very keen interest to see what the Show will reveal in this direction,



Hotchkiss and Delage.—Two of the best cars built in France are the Hotchkiss and Delage, which are represented in England by the London and Parisian Motor Co. Both machines are characterised by extreme neatness of construction, and the above sketches show the methed of leading the ignition cables through the water head on the Delage and the method of leading the induction-pipe thrcugh the cylinder casting on the Hotchkiss.

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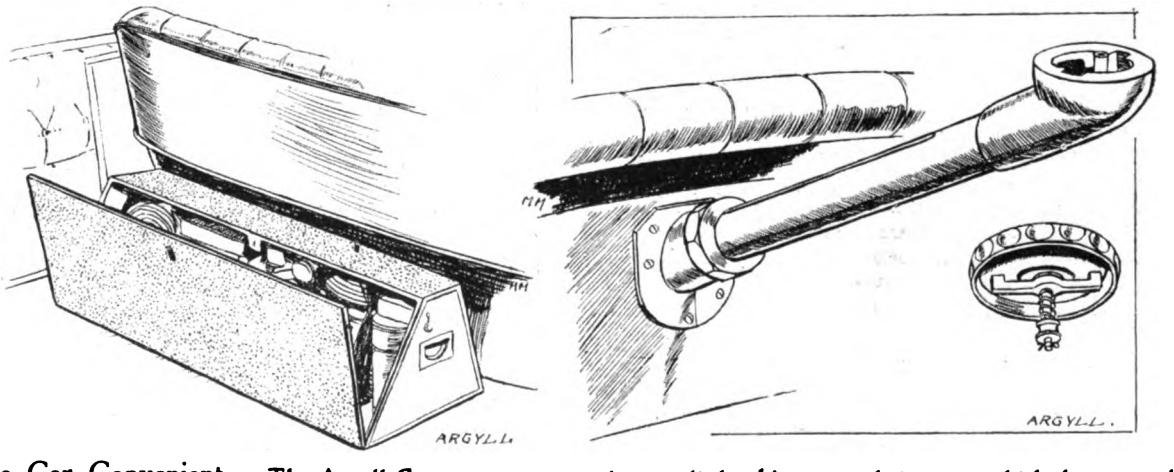


Little Things in Chassis Design.—1. The adjustable stop on the Cadillac axle which prevents the front wheels rubbing their tyres against the frame at full lock. 2. Telescopic valve-spring covers on the Cadillac car which keep the dust away from the tappets, and therefore prolong their life in good adjustment. 3. How to fit a padlock on the change-speed lever of the N.A.G. cars so that unauthorised persons cannot use the machine in its owner's absence.

and I am quite willing to put up with something that is complicated and wants looking after, as long as the care one gives to such an apparatus assures its working under all conditions. I have recently had some experience with the Cadillac self-starter, and I must say that I envied my friend who has charge of this car from the very bottom of my heart. We were both ordered rather early in the morning for some two weeks, and it was bitter cold at 7 a.m. in the second half of last September. Now my car is quite an easy starter, but she wanted some "winding up" every morning. All my Cadillac friend had to do was to get ready, sit down, press a pedal and a button, and his motor would do all the work. Mind you, the motor had just the same hard job starting the engine, but my friend did not get tired pressing the button and holding out the clutch.

In connection with self-starters I am quite aware that no self-starter will start an engine that cannot be started by hand. By this I mean to say that when you have a self-starter you must be more careful than ever to see that the engine is in a condition to start easily. You must not forget to switch on, you must not forget to flood the carburettor, you must not forget to open the throttle, you must not forget to retard the ignition and what I want to know is, what is going to happen when you get a backfire with some of these self-starters. Ingenious answers to this question are also among the things that I shall expect to find at Olympia. I do not know that at the moment I have any particular preference or prejudice in the matter of self-starters, my experience with them is too limited for that. Apparently they all work well enough when the engine is right, but when the engine is not right no self-starter will start it. The prospective purchaser who asks whether he could drive his car home on the self-starter if the engine went wrong may have raised the smile sarcastic in the eye of the technical saleman, but manufacturers can take my word for it that he is not alone, in so far as his question shows an attitude of mind implying that he supposed that the self-starter possessed virtues above a mere capacity for cranking the engine a few times.

If I had to express a preference I should choose a self-starter that turned the engine fast for a few revolutions rather than one that turned it slowly for a relatively long time. I can turn any engine slowly myself, and I can also swing most with good effect, but I would be more than willing to let any self-starter that could, save me the trouble. I can see many chauffeurs in the future



The Car Convenient.—The Argyll Co. pay great attention to little things on their cars, which have a well-designed footstool and tool case behind the front seat, while the petrol tank in the dashboard is fitted with a telescopic funnel.

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saying a word in the private ear of the self-starter for its especial edification when it has exhausted itself without doing the trick. Among my very few experiences with self-starters was an occurrence of this sort. The engine, a 6-cylinder motor of considerable size, had an air apparatus aboard, and having set the throttle where I thought right, retarded the ignition, tickled the carburettor and what not, I opened a series of taps and the engine made a noise, but it did not start. I tried the operation several times and finally it even ceased to make a noise. The air reservoir was exhausted. It was then necessary to do the job by hand, so I went to the starting crank, and the first pull up was sufficient to convince me that either the pistons were uncommonly tight, or else the throttle was shut. The throttle *was* shut, in fact the lever and its connection to the carburettor were not quite as the maker intended they should be, with the result that where the quadrant said "open" it was not open. Well, I merely mention this incident to emphasize my point that, while a self-starter may save you trouble, it does not exonerate you from responsibility. If I had been starting the engine by hand in the first instance, I should never have lost two seconds in looking at that throttle connection, but, having a self-starter to do the work, I let it rip, and as it could not tell me that the pistons felt tight it just exhausted itself in moving them. That is where the self-starter lacks intelligence. It is the intelligent self-starter that I shall not expect to see at Olympia.

There is very little that I am going to attempt to say on the problem of carburation. It appears to me that there are a few, very few, people who know something about it, the rest of us simply think we do and in fact do not. A few remarks, however, apply to all carburettors, and the first is that they should be accessible. If I look for anything at Olympia I look for an accessible carburettor. I may know nothing at all about the theory of carburation, but I do know where the petrol comes in, and I also know where it is supposed to come out; I know, moreover, that it is supposed to come out through an uncommonly fine hole, so fine in fact that the least bit of fluff in the petrol is sufficient to choke it. Now it is no use a chauffeur telling his master that the carburettor has been "adjusted and set at the works" when its immediate trouble is a choked jet or a choked feed-pipe and the car won't go. I have not the least desire to tamper with anybody's adjustment or anybody's setting, but I just ask them the plain question, what is the virtue of either when the car won't go at all? Under such circumstances I have just got to get at that jet or that feed-pipe as quickly as I know how, and the quicker I am, the better pleased will my master be *with the car*. Petrol pipes ought not to choke up but they do. Strainers ought to prevent things blocking the jet but they don't, that is to say they don't always, and they more particularly don't when the car is new. For some reason that I have never had satisfactorily explained, the interior lining of tanks and copper pipes and carburettors that are new seems to grow a kind of downy flora that continues to be washed away with more or less exasperating regularity during the course of the next month or so after the car has first gone into service.

Another thing I shall look for at Olympia among the carburettors, but in all probability shall fail to find, is better protection for the air inlet for the purpose of preventing dust from getting into the engine. Dust, according to the scientist's point of view, plays a large part in the formation of carbon deposit, or so I understand; all the more reason therefore for a device for keeping it outside. A suggestion put forward in this journal some time back, which interested me very much, was that air ought to be washed before it goes into the carburettor. I daresay washing the air would be a bit of a nuisance but I can quite believe it would be useful. It was remarked at the same time, I remember, that the cleansing of the air by the dew as it collects in the atmosphere and deposits on the ground may account for the phenomenon of increased smoothness of action, which is noticeable in most engines about the time of the evening when dew is falling. I know that a lot of people profess to say the difference in running is an illusion, but illusion or not it's an uncommonly persistent effect, and if washing the air before it goes into the carburettor would make the illusion keep on all day instead of only for a short spell in the evening, I should think it would be well worth trying.

My ideas on transmission are, perhaps, unorthodox, but I daresay it hasn't occurred to manufacturers that what the chauffeur objects to most about the ordinary gear-box is the dirtiness of the job of cleaning it. I confess to a desire to see the hydraulic system under more general trial. Last year I looked at the pieces of the Lenz transmission, which were shown separately on a table; this year I shall look to see if it has managed to put itself together and find a place on a car. I know nothing about the Lenz transmission, in its favour or otherwise, but I suppose it must have worked more or less satisfactorily, or it would scarcely have been shown as it was; anyway, I am rather curious to see developments in this direction, or, at least, should like to know why they don't take place. In the back of my mind I am certain that I shall have to put up with a gear-driven car for a long time to come, and having to make the best of the present system of transmission as a whole, I will first pass a few remarks upon the clutch.

Clutches, like brakes, are made to wear, therefore they should be accessible before everything. To my thinking there is little to choose between leather and metal clutches so long as they are well made. I prefer a leather clutch but it is a personal fancy.

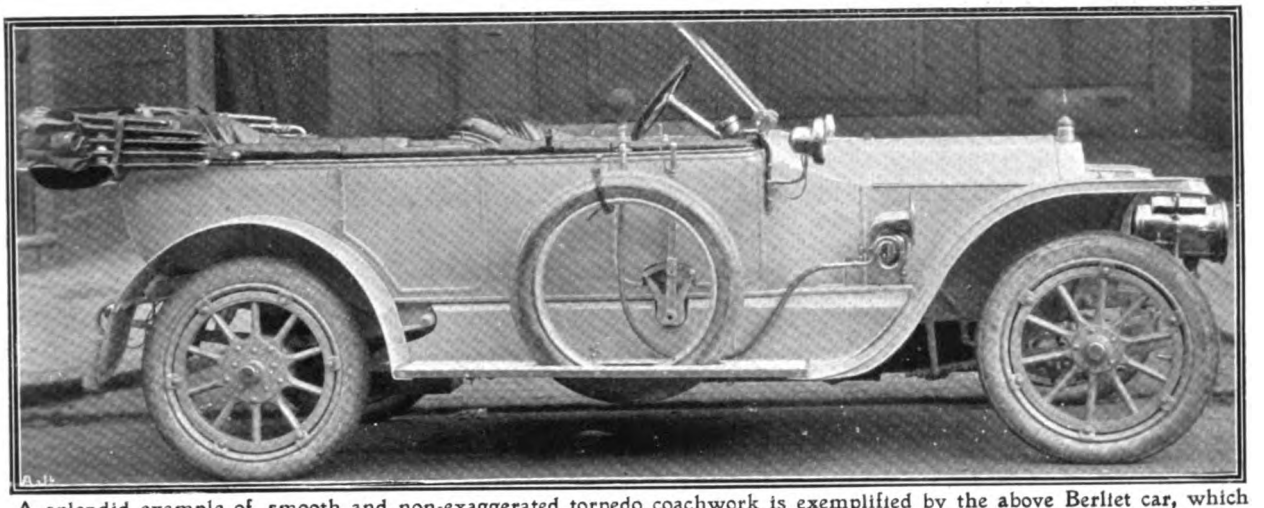
When a metal clutch that was initially good goes out of action there is only one thing to do—wash it out and start with fresh oil. Time spent on any adjustments is wasted; you may take my word for that. When metal disc clutches first came in I remember trying to adjust one on the road. Working diligently with a spanner in the wrong place I suddenly found the tool taken out of my hand, while the bolt that I was turning shot down the car beyond the back axle and out into the ditch. I don't quite know what was behind that bolt but I suspect it was a spring of sorts. I found the bolt all right, but nothing in the tool kit would induce it to go back again into its place, so for the rest of that journey the clutch had to work without it.

Speaking of clutch lubrication, I shall expect to see at Olympia more attention given to lubricating thrust collars and spigot bearings; the latter especially is a difficult part of the car for the chauffeur to look after, and I advise those of my calling to enquire whether the clutch spiggot of the cars they are interested in, has or has not any facilities for internal lubrication through the crank-shaft.

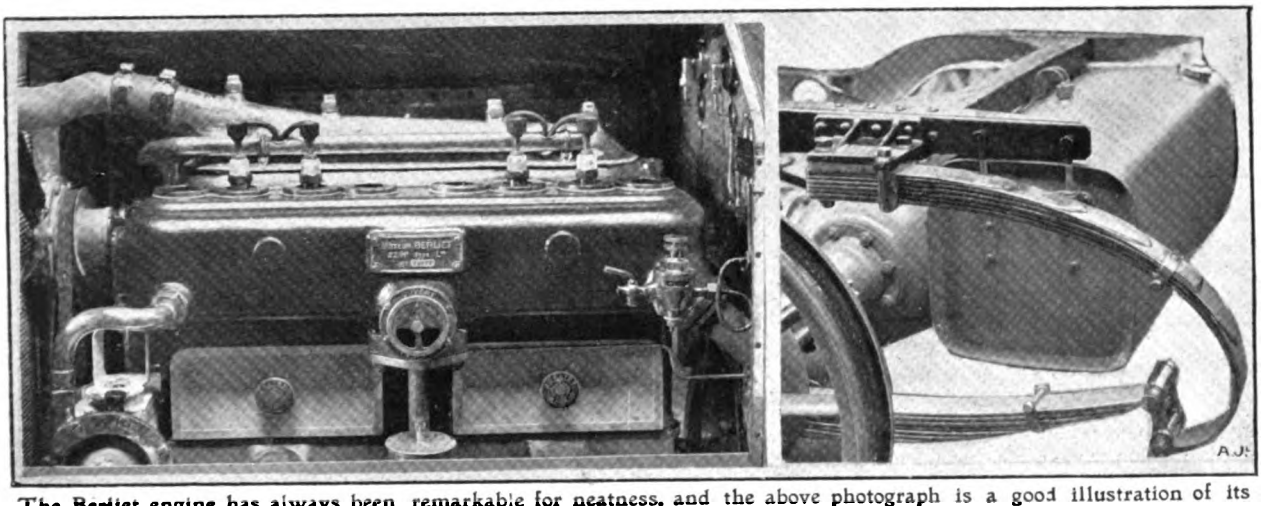
If I have to choose a gear-box I take a four-speeder every time, for I know that cars are overloaded more often than not, and I do not mind changing down. In any case changing down on a four-speed box is easier than changing down on a three-speed box, and I never

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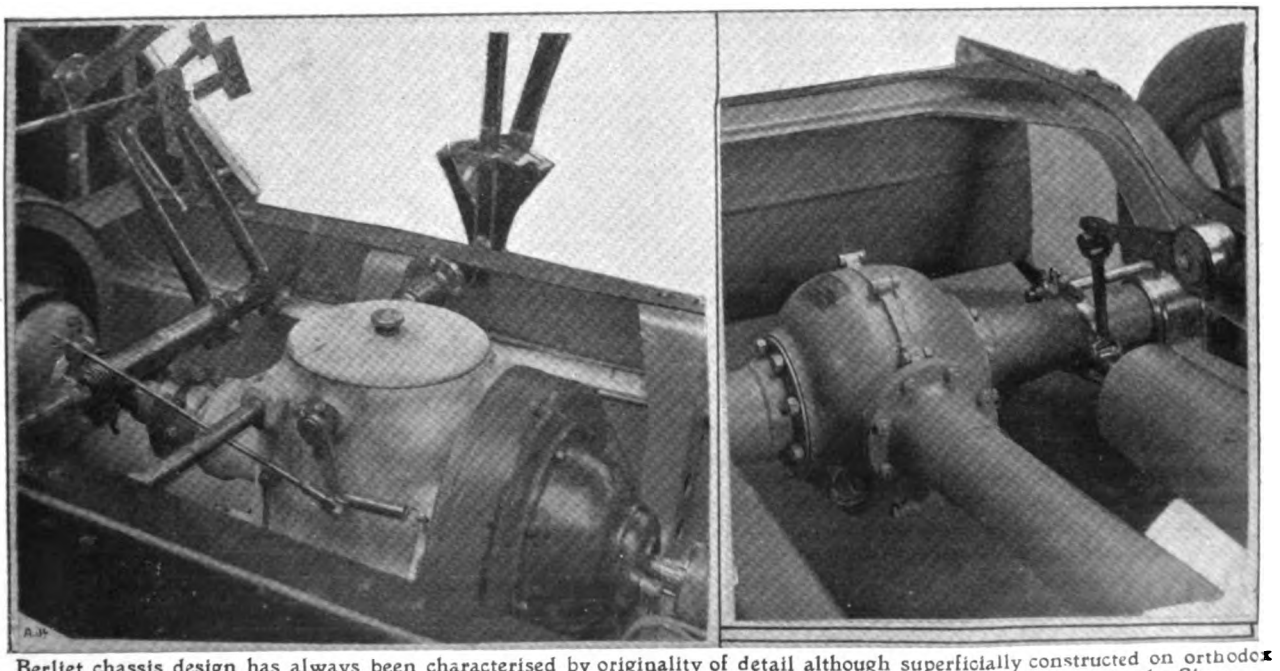
BERLIET DESIGN.



A splendid example of smooth and non-exaggerated torpedo coachwork is exemplified by the above Berliet car, which is as pleasant to drive as it is graceful to the eye.



The Berliet engine has always been remarkable for neatness, and the above photograph is a good illustration of its claim to this quality. On the right is the Berliet three-quarter elliptic rear spring.



Berliet chassis design has always been characterised by originality of detail although superficially constructed on orthodox lines. The gear-box and back axle illustrated above are not quite like anything else that is to be seen in the Show.

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knew a car of any kind on which it was not necessary to change down sometimes. Anyone who can feel the running of a car ought not to mind changing down; this persistent forcing of cars up almost every hill on top gear has led to undergearing of back axles to an extent that I, personally, dislike intensely. Also, I think it is a waste of good petrol to be for ever spinning the engine round as fast as it will go.

No gear-box should be without a vent hole and some provision for ascertaining the level of the lubricant in the box without the necessity of having to take half of it to pieces.

Taking it for granted that the good old chain as a final drive is dead, most people look at the back axle merely to find out whether there is a worm or a bevel drive. Personally I don't care which it is as long as it is made of the right material, and fitted, not thrown together. What interests me first and foremost in a rear axle is whether I can jack it up or not. Have a good look round the Show, and ask some of the designers to show you how to do it when one of the tyres is down. You will see some fun! Curious to relate, some of the most capable designers are among those who seem to have quite forgotten this point.

From what I hear and read of the new models, it seems that our old friend the underslung rear-spring is to have another chance. I am pleased at this, because the spring centre is the ideal spot against which to place a jack, but now we shall want new jacks. Most of them will, I am afraid, not go under an underslung spring in case of a puncture, but it is only a small difficulty.

From axles and springs it is only a step to the road-wheels, and here again a good deal of improvement could be effected. Is it not curious that for the sake of but a few pounds in the initial cost of the tyres, motorists put up with small wheels, and in consequence pay through the nose for tyres and shock absorbers in order to ensure comfort? Whenever my employer is buying a new car I urge him to see that she has big wheels. Tyres last much longer on large diameter wheels and the difference in the comfort of running can only be appreciated by those who actually try the same car with different sized wheels. All wheels should be detachable, and among the variety of detachable wheels I prefer the hollow steel wheel to any other. It does not matter to me whether the wheel is made of steel or wood, as long as it has an ample margin of safety, and as long as I am sure of this I prefer the wheel that wants the least amount of attention. It is in this point that the hollow steel wheel scores, in my opinion. I have a strong dislike for detachable rims.

Brakes all round could still be much better, especially on the smaller cars. Because the cars themselves are, as a rule, light, their brakes are often very small, but these fast little machines want a lot of pulling up, and I can only believe that some designers are afraid of having them shaken to pieces if they fit really powerful brakes. Being a driver of the old school I use the transmission-brake in emergencies only, and the side-brake is the one I most frequently use. For this reason I prefer the pedal to be connected up to the rear wheel brakes and the hand lever to the countershaft drum. But why have a transmission-brake at all? I much regret to see that the attempt to introduce front wheel brakes two years ago seems to have been largely given up, but I shall look forward to driving one of the new Argylls with the diagonal brakes which seem to me an excellent idea, although I have had no experience with them yet. It ought to be the ideal non-skid. Too little attention is often paid to the anchorage of the brake-shoes, with the result that the hinges soon wear and rattle.

There is generally plenty of room for improvement in the control mechanism of the cars. The problem of the side levers is still unsolved. Where the levers are inside the body panel they more often than not are in the way of the driver's right leg, or if they are not, there is rarely enough clearance between the brake lever and the body to allow for a good quick grip in an emergency. When they are both outside it is in most cases impossible to put on the handbrake without knocking your funnybone against the hood-bracket—a very nasty sensation. The solution of this difficulty to my mind lies with the chassis maker and not with the coach-builder, but the one blames the other for the short-comings of each and between them they make but little real attempt to solve the difficulty. We might with advantage take an idea from the Americans and fit the control in the centre; this would kill two birds with one stone. It would make the levers very handy and would at the same time do away with the present farce of the off-side entrance to the driver's seat.

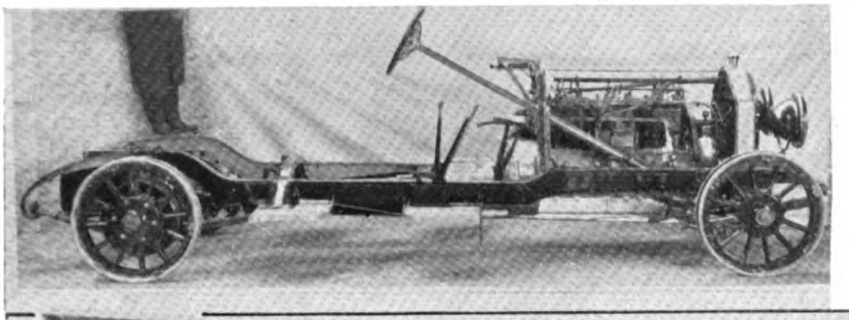
Spark and throttle levers should be on the steering-wheel with the switch in the centre. The accelerator should be between the two pedals and not somewhere in a corner behind the foot brake. Clutch and brake-pedals should be well apart and clear of the steering column.

Chauffeurs, as a rule, have not much to say in the matter of bodywork, but I wish that all those who value the appearance of their cars would bear in mind that a chauffeur's work makes his hands very dirty and that the less delicate the colours and the materials of the body-work generally, and of the upholstery in particular, the cleaner they can be kept. Mudguards are either inefficient or are fitted so close to the wheels that it is very difficult to clean them inside or to change a tyre without damaging them. Let us have them detachable; it can be done quite simply and easily, and is a real boon to the chauffeur. A good deal of improvement can still be effected in the fastening of the hoods when down. Again the Americans are leading the way in this point, and the clamp I saw the other day on a Chalmers is about the best thing of its kind I have come across.

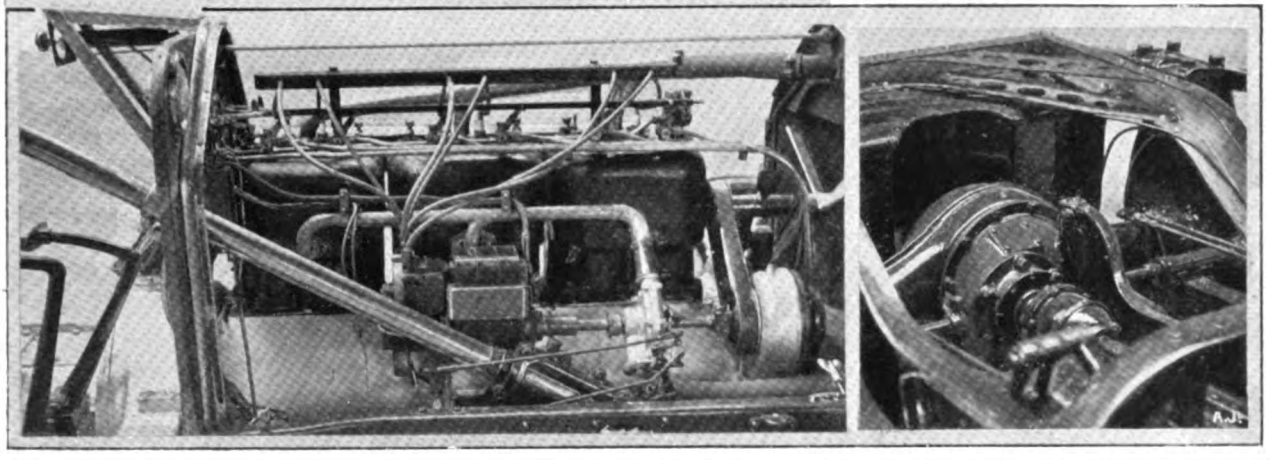
Let me not forget to say that every door on the body-work, especially on closed bodies, should be provided with lock and key, and every bonnet ought to have provision for locking it effectively, so as to prevent thefts when the car has to be left in strange places.

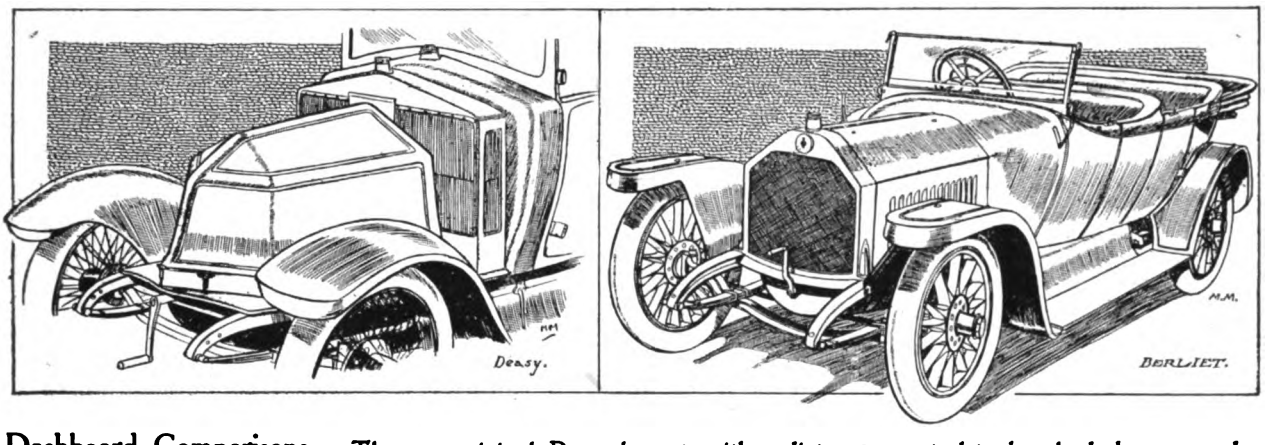
Finally I come to a favourite subject of mine—the tool-kits that makers send out with their cars. A book could be written on the sins committed in connection with these tools. Anything seems to be good enough for a chauffeur, and I have as much as thrown down a brand new kit of tools offered to me by a very famous motor manufacturer when he delivered the new car to my "boss." I was disgusted, and broke half of the spanners with finger and thumb in his very showroom, just to show him the rubbish he was asking me to accept. The best of the whole matter was that the chief of the firm seemed to be utterly surprised, with the result that he asked me to order a tool-kit according to my own ideas, which I did, and I got it for nothing. If my employer buys a new car this Show, I shall want to see the tools that go with it. I shall not grumble if there are not any, but I shall not advise him to buy a car, the makers of which ask me to keep it in order with tools that are not fit for a boy's toybox.

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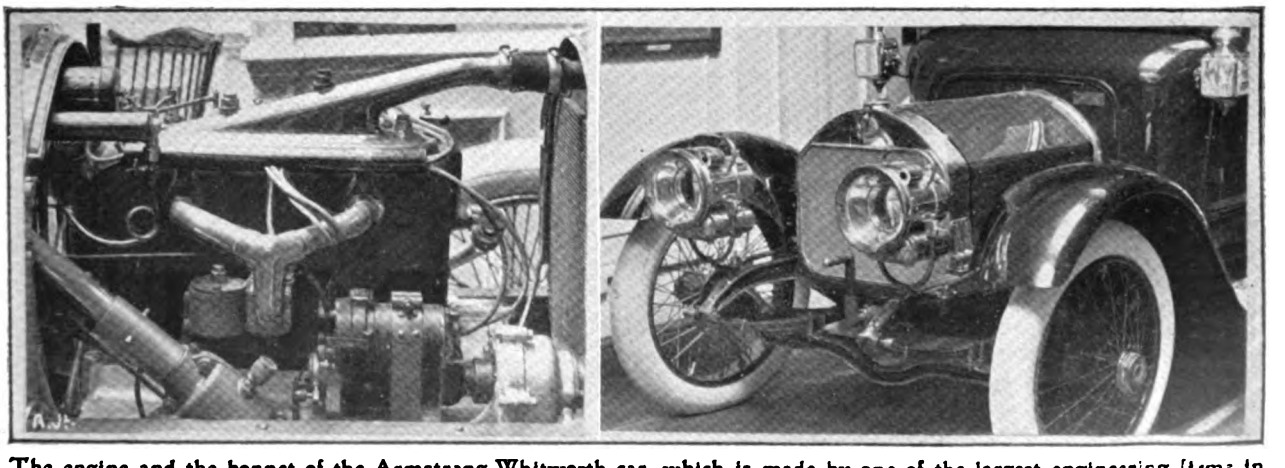


Side view of the new Bedford 6-cyl. chassis; also views of the engine and back axle.





Dashboard Comparisons.—The very original Deasy bonnet, with radiator *cum* petrol tank cab dash, compared with the Berliet torpedo design adapted to the orthodox type of bonnet.



The engine and the bonnet of the Armstrong-Whitworth car, which is made by one of the largest engineering firms in the world.

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"AUTO." LIST OF CARS FOR 1913.

THE following list of cars includes, we believe, every model on the English market, whether of British or foreign construction, for every firm known to us as a maker or concessionaire during 1912 has been invited to include his cars in this Buyers' Guide. Presumably, therefore, any who have not replied are no longer concerned in their former business.

Cars in this list are arranged alphabetically, and all the information about each that is essential to a preliminary inquiry is given in the tabulated particulars. By preliminary inquiry, we mean the questions that a prospective purchaser will naturally first ask about a machine in order to find out whether it seems in the least suitable for his purpose.

Price, power, engine dimensions, number of cylinders and speeds, and length of wheel-base are the only points essentially raised in this connection, and the answers to such queries will be found in the table. Other details are essentially related to a specific purpose and are best satisfied by actual inspection and trial of the car itself. The table, it will be observed, follows the lines of our weekly Directory, where also will be found the *current* addresses from which further information about the various machines can be obtained. Many cars change their agencies so frequently that anything less frequent than a weekly Directory, such as appears in every issue of the AUTO., is apt to get very much out of date. For a table of uniformity, the Directory—which, being free, is absolutely as complete as it can be—is based on London addresses, except in the cases of firms who have no London showrooms, and those who avail themselves of the opportunity of inserting all their addresses at a nominal charge. We advise readers who tear out this for future reference, therefore, to be sure to look at the current AUTO. Directory for any corrections that may have been made in the interim.

Aberdonia— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
16-20	19·8	4	3½	5	3	10′ 0″	400

Adams— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
16-20	19·2	4	88	120	4	10′ 0″	365

Adler— *Germany.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£*
10	10	4	65	98	4	8′ 2″	280
12	13·9	4	75	103	4	8′ 10″	330
14-18	13·9	4	75	120	4	9′ 2½″	370
15-25	15	4	80	130	4	9′ 4½″	500
25-35	20·9	4	92	148	4	9′ 10½″	625
35-45	30	4	114	160	4	10′ 6″	795

* Prices are for complete cars.

Albion— *Scotland.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	15·6	4	79	127	3	8′ 4″	355
						9′ 0″	360

Alldays— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10-12	11·2	2	95	115	4	8′ 6″	210
12-14	14·3	4	76	120	4	9′ 0″	240
16-20	18·4	4	86	130	4	9′ 0″	290
						9′ 9″	300
24-30	24·8	4	100	130	4	9′ 6″	340
						10′ 6″	350
30-35	33·6	6	95	115	4	11′ 6″	450

Argylls— *Scotland.*

H.P.	R.A.C.	CYL	B	S	SP.	WH-B	£
12-18	12·8	4	72	120	4	9′ 0″	285
15-30	15·9	4	80	130	4	9′ 10″	450
25-50	25·8	4	100	130	4	10′ 6″	615

Ariel— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B.	£
8	9	2 V	85	85	2	7′ 6″	140
12	14·3	4	76	120	3	8′ 3″	255
						8′ 8″	280
15	15·8	4	80	130	3	9′ 6″	325
20	20·1	4	90	130	4	9′ 8″	395
25	24·8	4	100	130	4	9′ 8″	450

Armstrong-W. *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15-20	15·9	4	80	135	4	9′ 8″	375
17-25	17·9	4	85	135	4	9′ 8″	435
25-30	25·5	4	100	120	4	10′ 6″	550
30-50	30·2	6	90	150	4	11′ 9″	850

Arrol-Johnston— *Scotland.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
11·9	11·9	4	69	120	4	9′ 2″	265
15·9	15·9	4	80	140	4	10′ 3″	335
23·9	23·9	6	80	120	4	11′ 1″	470

Austin— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	14·3	4	76	89	4	8′ 3″	260
15	19·6	4	89	115	4	9′ 3″	330
18-24	30·0	4	110	127	4	9′ 11″	480
50	45·0	6	110	127	4	11′ 6″	650

Austro-Daimler— *Austria.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
16-18	15·9	4	80	110	4	9′ 8″	390
16-25	15·9	4	80	110	4	9′ 3″	440†
20-30	20·1	4	90	140	4	10′ 2″	525†
25-35	27·3	4	105	130	4	10′ 2″	570
35-60	35·3	4	120	154	4	11′ 0″	750
27-80	27·3	4	105	165	4	9′ 10″	875†

† Including wir wheels.

Baguley— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15-20	20·1	4	90	130	4	9′ 6″	360
						10′ 6″	370

Bayard— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£†
7	6·9	2	75	110	3	7′ 5″	—
8	8·9	4	60	120	3	7′ 5″	—
10	10·5	4	65	120	3	8′ 3½″	—
11	13·9	4	75	110	3	8′ 10″	232
14	15·8	4	80	130	3&4	9′ 5″	292 / 302
18	17·9	4	85	140	4	10′ 8″	352
20	24·8	4	100	140	4	11′ 0½″	420
20‡	20·1	4	90	130	4	10′ 3½″	460
15	18·2	6	70	110	3	9′ 8½″	300
20	23·8	6	80	120	3&4	10′ 5″	360 / 370
30	37·2	6	100	140	4	11′ 5½″	520

† Carriage from Paris to London extra.

‡ This model has a Knight-Daimler engine.

Bedford— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15-18	22·5	4	95	95	3	8′ 9″	175
18-22	25·6	4	102	102	3	8′ 9″	220
28-32	28·8	4	108	115	3	9′ 7″	295

Bell— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
16	20	4	90·5	120	3	10′ 3″	
						or 9′ 6″	325
20	26	4	101·5	140	—	10′ 3″	
						or 9′ 6″	400
30	32·8	4	117	150	—	10′ 3″	475

Belsize— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10-12	11·8	4	69	130	3	8′ 1″	185
						8′ 5″	185
15·9	15·9	4	80	140	4	9′ 0″	260
14-16	21·9	4	93	120	4	8′ 9″	260
						9′ 3″	265
18-22	32·7	6	93	120	4	10′ 0″	375

Bentall— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
16-20	24·8	4	100	95	3	9′ 9″	283

Benz— *Germany.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-20	12·8	4	72	120	4	9′ 4½″	325
†15-25	15·9	4	80	130	4	10′ 0″	450
						10′ 4½″	450
25-30	20·1	4	90	140	4	10′ 6″	575
28-35	—	4	95	140	4	10′ 6″	625
35-45	—	4	120	144	4	11′ 1″	775
40-65	42·1	4	130	160	4	11′ 1″	950
100	42·1	4	130	190	4	11′ 5″	1,150
200	84·5	4	185	200	4	9′ 8″	1,800

† Special sporting model.

Benz-Sohne— *Germany.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
16-20	15·9	4	80	130	4	9′ 8″	380
						10′ 6″	390
17·9	17·9	4	85	115	4	9′ 8″	390
20-30	—	4	90	140	4	10′ 9″	525

Berliet— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12	12·2	4	70	100	4	9′ 1″	285
15	15·9	4	80	120	4	9′ 7″	370
						10′ 5″	395†
18	20·1	4	90	120	4	10′ 6″	460
						11′ 0″	460
25	24·8	4	100	140	4	10′ 6″	495
						11′ 0″	495
40	35·7	4	120	140	4	10′ 3″	650
						11′ 0″	650

† Dropped frame.

Bianchi— *Italy.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-16	—	4	75	120	4	9′ 3″	325
18	20·1	4	90	115	4	10′ 2″	400
25-30	—	4	100	140	4	11′ 0″	550
30-35	30	4	110	150	4	10′ 6″	600
40-50	—	4	130	160	4	11′ 0″	650
†70	—	4	130	150	4	11′ 0″	800

† Overhead valves.

Bollee— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14-20	17·9	4	83	110	4	9′ 7″	375
						10′ 2″	
						10′ 6″	
20-30	25·6	6	83	110	4	10′ 10″	545

Brasier— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	10·1	2	90	120	3	8′ 3″	226
11	11·1	4	67	110	4	8′ 10½″	266
12	12·4	4	70	120	4	9′ 8″	300
16	17·4	4	85	140	4	10′ 4″	400
22	24	4	100	150	4	10′ 8″	540
24	30	6	90	140	4	11′ 5″	566

Bronna— *Germany.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-20	12·1	4	70	102	3 & R.	8′ 11½″	240
15·9-25	15·9	4	80	102	4 & R.	9′ 9″	300

Briton *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	11·3	4	68	120	3	9′ 0″	247
14	15·8	4	80	120	3	9′ 11″	326

Brooke— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
25-30	31·5	6	92	120	4	10″ 6′	495
40	43·5	6	108	120	4	10′ 6″	580

B.S.A.— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B.	£
13·9	13·9	4	75	114	3 & R.	9′ 4″	250

Buchet— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-20	14·3	4	76	120	3	8′ 10″	238

Buick— *America.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
16	22·5	4	3¾	3¾	3	105″	220†
							240‡
20	25·6	4	4	4	3	105″	245†
							295‡

Prices are for complete cars.
Including 5 lamps, Acetylene generator, quick detachable rims, pump, jack, repair kit and set of tools.
† Two-seater. ‡ Four-seater.

Cadillac— *America.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
20-30	32·4	4	4½	5½	3	120″	430‖

Price includes electric starter and electric lamps.

Calthorpe— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-15	11·9	4	69	125	3	102″	235
15	15·9	4	80	150	4	114″	303
20	20·1	4	90	150	4	114″	370

Chalmers— *U.S.A.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
25	25	4	102	114	3	115″	345†
25	25	4	102	114	3	115″	365‡

All models fitted with Chalmers' self-starters. Above prices for complete car.
† Two-seater. ‡ Four or five-seater.

Chambers— *Ireland.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12.16	18·2	4	85·7	101·6	3	9′ 0″	285
11-15	15·6	4	79·3	101·6	3	8′ 3″	245

Charron— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	10·5	4	65	120	3	8′ 6″	275
15	15·8	4	80	120	3	9′ 4½″	315
					4	9′ 4½″	335
22	22·4	4	95	130	4	10′ 6″	445
30	30·0	4	110	150	4	11′ 3½″	580
33	33·6	6	95	130	4	11′ 7″	600

Chenard-Walcker— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10-14	11·9	4	69	130	4	9′ 5″	300*
12-18	13·9	4	75	150	4	9′ 8½″	285
16-20	15·9	4	80	150	4	9′ 8½″	310
12-18	13·9	4	75	150	4	10′ 5″	325
16-20	15·9	4	80	150	4	10′ 5″	345
24-30	24·5	6	80	150	4	10′ 5″	495

* Complete car.

Clement—*First three models in England, 30-35-h.p. in France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-14	13·9	4	75	110	4	9′ 0″	290
14-18	20·1	4	90	120	4	10′ 0″	350
25-30	28·9	4	107	130	4	10′ 6″	500
30-35	32·8	4	115	140	4	10′ 9″	550

Clyde— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	7	4	60	100	3	7′ 9″	165

Coltman— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
20	25·6	4	101	114	4	9′ 4″	320

Cottin— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
16-20	15·9	4	80	160	4	10′ 0″	390
20-30	24·8	4	100	160	4	10′ 2″	510
40	35·7	4	120	160	4	10′ 2″	650
60	41·9	4	130	200	4	10′ 4″	810
16-20	—	4†	80	160	4	— ‡	410§
20-30	—	4†	100	160	4	— ‡	530§

† 4 valves per cyl.
‡ Short racing chassis.
§ Special racing mode's.

Crespelle— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10-12	10·8	4	65	130	4	8′ 6″	245
12-16	13·9	4	75	120	4	9′ 6″	285
14-18	13·9	4	75	150	4	9′ 10″	300

Crossley— *England.*

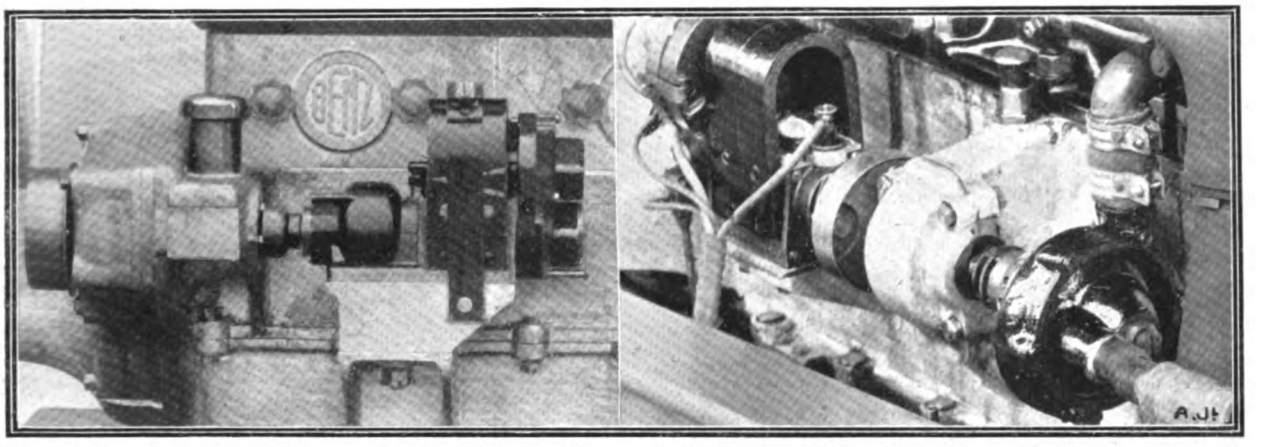
H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	15·6	4	79·4	120	4	9′ 7″	350
						10′ 7″	370
20-25	25·6	4	102	140	4	10′ 6″	475
						11′ 3″	500

Cyclone— *Berlin.*

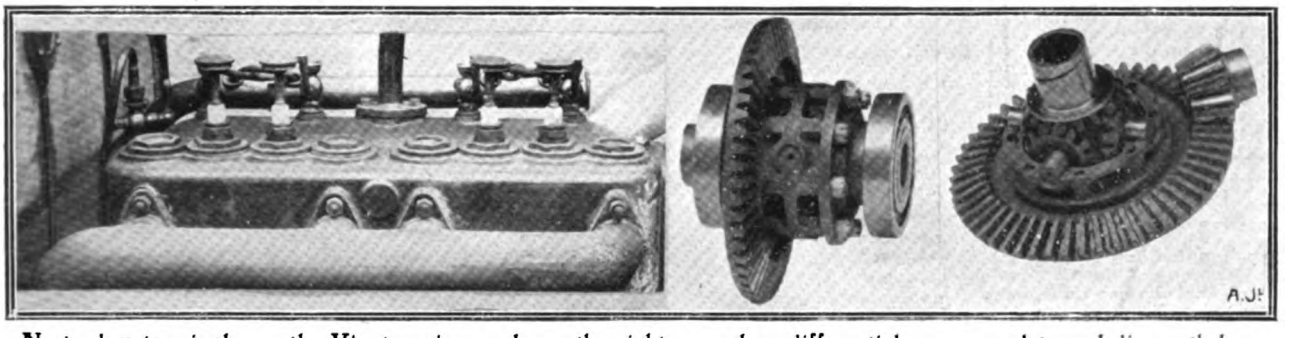
H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
6	6·4	2	72	90	2	6′ 8″	145†

† Complete with two-seater body.

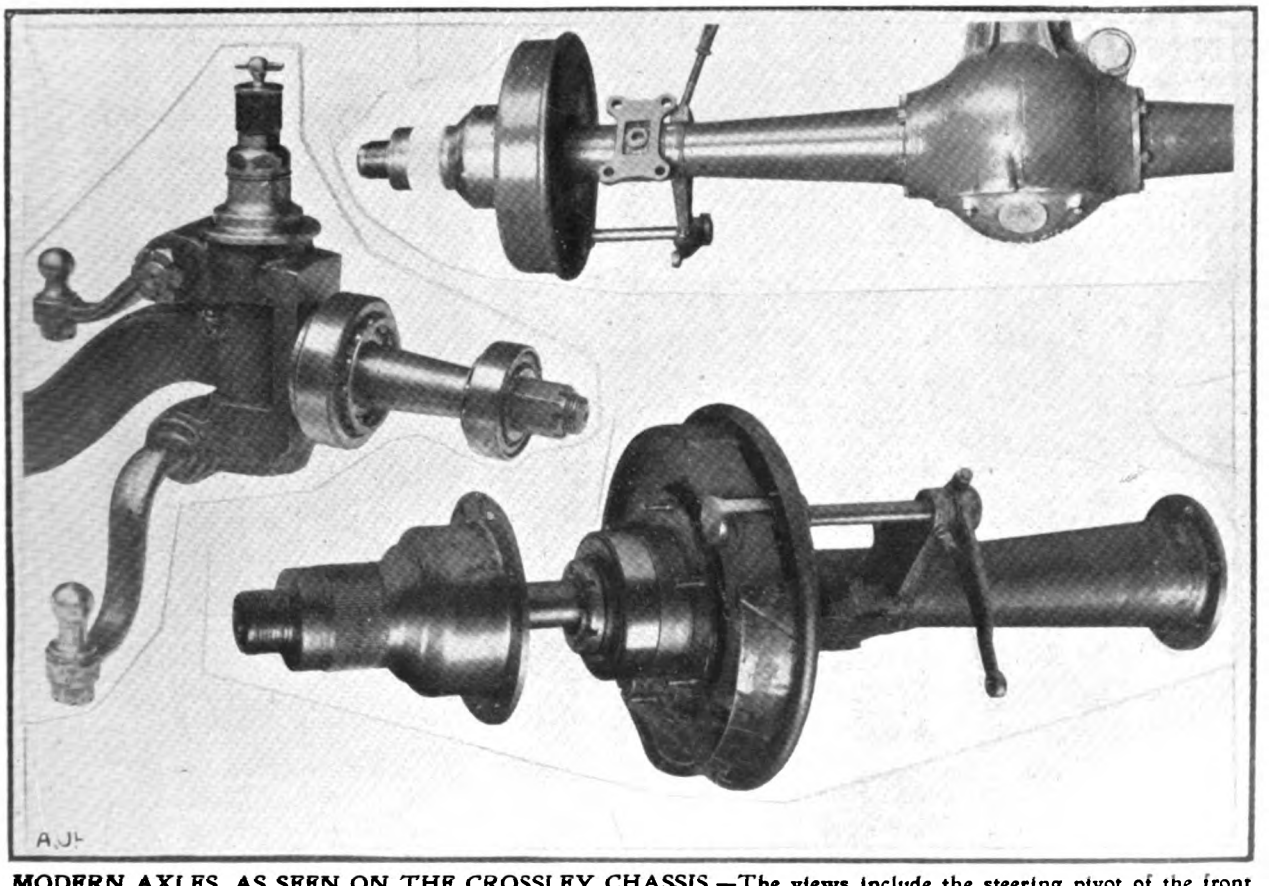
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A comparison in magneto drives, as illustrated by the Benz and the Deasy engines. The Deasy is shown on the right.



Neat plug terminals on the Vinot engine, and, on the right, a modern differential gear complete and dismantled, as made in the Crossley factory.



MODERN AXLES, AS SEEN ON THE CROSSLEY CHASSIS.—The views include the steering pivot of the front axle and two illustrations of the live rear-axle.

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Dalmler— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	15'9	4	80	130	3	10' 3½"	380
20	20'1	4	90	130	4	10' 3½"	430
26	25'4	4	101·5	140	4	11' 0"	575
38	38'1	4	124	130	4	11' 0"	625
30	30'1	6	90	130	4	11' 6½"	650
"Special model"		6	101·5	140	4	11' 11"	850

D'arracq— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	11'9	4	68	120	3	9' 2"	195
12	13'9	4	75	120	4	9' 5"	240
16	17'9	4	85	130	4	9' 9½"	290
22	24'8	4	100	140	4	10' 4"	320

Deasy— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
†12	13'9	4	75	114	3	9' 3"	275
14–20	15'9	4	80	130	4	10' 5"	395
18–24	20'1	4	90	130	4	10' 10"	460
18–24	20'1	4	90	130	4	10' 10"	465
24–30	30'2	6	90	130	4	11' 3"	685

† Stoneleigh model.

De Dion— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
7	5'1	2	66	120	3	8½	186½
12	10'8	4	66	120	3	10½	283
14	13'9	4	75	130	4	11 1/16 or 12 0/16	354½
18	15'8	4	80	140	4	13 0/16	411
25	24'8	4	100	140	4	13 7/16	506½† 531½‡
26	27'8	8	75	130	4	13 2 1/16	506½† 531½‡
50	44'0	8	94	140	4	14 0/16	687½

† Bevel drive. ‡ Worm-drive.

Delage— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£†
12	10'5	4	65	110	3	7' 8"	251
						9' 4"	312
14	13'9	4	75	120	3	9' 4"	330
						9' 9"	398
15'9	15'9	6	65	125	3	9' 4"	378
						10' 7"	438

† Chassis fitted with open touring body, tyres and tools and spares.

Delahaye— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
9–11	9'5	4	62	100	3	8' 10"	240
8–10	7'9	2	80	120	3	8' 7"	210
12–16	13'9	4	75	110	4	9' 6"	316
16–20	17'9	4	85	130	4	10' 6"	400
18–24	20'9	6	75	120	4	10' 6"	450
20–30	22'4	4	95	130	4	10' 8"	472

Delaunay-Belleville— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
25	25'4	4	100	140	4 & R	10' 6"	540
26	26'9	6	85	130	4 & R	10' 6"	600
37	37'2	6	100	140	4 & R	11' 2½"	740
25	25'4	4	100	140	4 & R	10' 6"	550
26	26'9	6	85	130	4 & R	10' 6"	610†
37	37'2	6	100	140	4 & R	11' 2½"	740†
17	17'9	4	85	130	4 & R	9' 9"	420†
19	19'3	6	72	120	4 & R	10' 0"	480

† Colonial models.

Dennis— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
18	20·89	4	90	130	4	10' 3"	390
24	24'8	4	100	130	4	10' 3"	450

D.F.P.— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	10'4	4	65	120	3	8' 6"	225
12–15	11'9	4	70	130	4	9' 8"	275
16–22	15'8	4	80	150	4	9' 11"	350

Dodson— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–16	15'9	4	80	120	4	9' 1"	350
20–30	25'6	4	100	140	4	10' 2"	455
15	15'8	2	4 1/16	5 4	4	9' 3"	315
19'9	20'0	2	5	5 4	4	9' 3"	335

† Valveless models.

Enfield— *Birmingham*

H.P.	R.A.C.	CYL.	B	S	SP	WH-B.	£
8	9'2	2	85	88	3	—	130*
12	14'3	4	76	120	4	9' 0"	240
						9' 0"	290
16	18'2	4	86	130	4	9' 9"	300
						9' 6"	340
25	24'8	4	100	130	4	10' 6"	350

* Complete car.

Everitt— *Parts are made in America. Assembled in England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B.	£
30	28	6	3⅝	4½	3	115"	450
40	38	6	4	4½	3	130"	575

Excelsior— *Belgium.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14–20	17'9	4	85	130	3	9' 11"	300
20–30	26'8	6	85	130	3	10' 8½"	435
25–35	30'1	6	90	140	3	11' 9"	550

F.A.B.— *Belgium.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–15	13'9	4	75	120	4	10' 2"	300
20	20'1	4	90	140	4	11' 0"	400

Fafnir— *Belgium.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
11–16	10'8	4	66	115	3	7' 6"	180
11–16	10'8	4	66	115	4	8' 11"	193
12–20	12'1	4	70	125	4	8' 11"	220
16–25	15'9	4	80	125	4	9' 10"	285
20–35	20'1	4	90	140	4	11' 0"	425

Fiat— *Italy.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–15	12'1	4	70	120	4	8' 11¾"	325
15–20	15'8	4	80	140	4	8' 11¾"	365
20–30	24'8	4	100	140	4	10' 3⅝"	515
35–50	30'0	4	110	150	4	10' 3⅝"	650
50–60	42'0	4	130	170	4	10' 8"	800

F.L.— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–16	15'9	4	80	100	4	9' 3"	325
						10' 0"	
18–24	23'9	6	80	100	4	10' 6½"	475

F.N.— *Belgium.*

H.P	R.A.C.	CYL	B	S	SP	WH-B	£
12–14	—	4	69	130	4	9' 6"	320
18	17'9	4	85	120	4	10' 3"	370

Chassis without tyres.

Ford. Model T— *America. Assembled at Manchester.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
20	22'4	4	3¾"	4"	2	100"	135†

† Complete car with two-seater body.

Forest— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
8'7	8'7	2	84	120	—	7' 4"	136

Foy Steele— *London.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12	14'3	4	76	127	3	9' 2"	260

Germain— *Belgium.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14	21'0	4	92	110	3	9' 9"	325
15	15'8	4	80	140	4	10' 10"	350
18	25'8	4	102	110	3	9' 9"	340
20	21'0	4	92	150	4	11' 6"	420
†20	20'1	4	90	130	4	11' 2"	440
28	35'7	4	120	130	3	10' 3"	480
						10' 7"	570

† Knight engine.

Gladiator— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12'1	12'1	4	70	110	3	8' 7"	295†
						9' 0"	335‡
15'9	15'9	4	80	130	3	9' 10"	445*
18–28	25'3	4	101	130	3	10' 0"	600*

* Complete car.
† Complete two-seater.
‡ Complete four-seater.

Globe— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
8	6'2	1	105	120	2	7' 2"	152*

* Complete car.

Gobron— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15–20	22'2	4	75	150	4	10' 4"	395
20–33	32'4	4	90	180	4	11' 3"	580
40–50	48'4	4	110	250	4	11' 9"	960

Gregoire— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
9–12	6'2	1	100	170	9	8' 3"	140
10–14	10'5	4	65	130	4	9' 3"	230
14–16	15'9	4	80	110	4	9' 8"	245
16–24	15'9	4	80	160	4	8' 1"	315

Hampton— *England.*

H.P.	R.A.C.	CYL.	B	S	SP	WH-B	£
11'9	11'9	4	65	130	3	9' 0"	195

Including Sankey detachable wheels.

Hansa— *Germany.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
13'6†	—	4	75	90	4	9' 4"	285
15'9†	—	4	80	90	4	9' 4"	315
15'9†	—	4	80	104	4	9' 6"	340
19'2†	—	4	88	104	4	10' 6"	400
36†	—	4	88	130	4	10' 8"	460
45†	—	4	96	130	4	10' 8"	535

† These h.p. are according to R.A.C. rating.

Hillman— *Coventry.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	10'1	2	90	140	3	8' 1"	230
12–15	19'6	4	89	110	3	9' 0"	276†
						9' 8"	282½†
25	40	4	127	127	3	10' 0"	435†
						11' 6"	460†

† Without tyres.

Hispano-Suiza— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–20	15'7	4	80	110	3	9' 0"	320
15–20	15'8	4	80	130	3	9' 0"	375
30–40	24'8	4	100	150	4	9' 10"	540
†15'9	15'9	4	80	180	3	8' 8"	425

† Alphonso XIII type.
All chassis are made in two lengths.

Hotchkiss— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–16	15'9	4	80	120	4	9' 6"	360
18–22	22'4	4	95	130	4	10' 6"	480
20–30	30	4	110	150	4	11' 0"	600
20–36	33'6	6	95	130	4	11' 2"	645

Hudson— *America.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
25'8	25'8	4	102	133	3	9' 10"	440
38'7	38'7	6	102	133	3	10' 7"	525

Humber— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
11	11'8	4	69	130	4	8' 11"	295*
11	11'8	4	69	130	4	8' 11"	310†
14	13'9	4	75	130	4	9' 2"	340*
14	13'9	4	75	130	4	9' 2"	355†
20	20'1	4	90	120	4	9' 4"	445‡
20	20'1	4	90	120	4	10' 4"	530§
28	27'3	4	105	140	4	9' 10"	515‡
28	27'3	4	105	140	4	10' 10"	640§

* Complete 2-seater.
† Complete 4-seater.
‡ Complete 5-seater.
§ Landaulette.

Hupmobile— *America.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15–18	17'1	4	83	140	3	8' 10"	210
12–14	17'1	4	83	88	2	—	175

Hurtu— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	12'1	4	70	110	3	8' 4"	215
14	13'9	4	75	120	3	8' 8"	245

Imperia— *Belgium.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	12'1	4	70	120	4	8' 6"	—
						9' 8"	
14–16	15'9	4	80	130	4	9' 8½"	—
						11' 0"	
20–24	20'1	4	90	140	4	9' 8½"	—
						11' 0"	
26 40	26	4	100	160	4	9' 8½"	—
						11' 0"	

Iris— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	15'9	4	80	114	3	9' 4"	350
25	29'8	4	108	133	3	10' 6"	575
35	40	4	127	133	3	11' 0"	700

Isotta Fraschini— *Italy.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–15	13'9	4	75	130	4	9' 0"	365
16–20	18	4	85	130	4	9' 6"	425
						10' 0"	445
20–25	24'8	4	100	140	4	10' 4"	565
						10' 8"	585
30–35	30	4	110	160	4	10' 5"	700
						10' 9"	775
27–80	27'3	4	105	180	4	20' 4"	—
						10' 10"	
100	42	4	130	200	4	10' 4"	—
						10' 10"	1,195

Itala— *Italy.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14–20	14'7	4	77	120	4	9' 2"	350
18–30	20'1	4	90	130	4	9' 11"	460
25–35	32'8	4	115	130	4	10' 1"	560
35–45	39'9	4	127	140	4	10' 2"	700
50–65	48'6	4	140	150	4	10' 5"	800
60–70	39'9	4	127	160	4	10' 6"	850
120	59'6	4	155	160	4	10' 11"	1200
60	59'9	6	130	140	4	11' 2"	960
75	72'9	6	140	140	4	11' 2"	1000
25	20'1	4	90	130	4	10' 1"	6cot
35	27'3	4	105	150	4	10' 2"	750†

† Rotary valve engines.

Ivor— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–15	13'9	4	75	120	4	10' 0"	275
15–20	13'9	4	75	130	4	10' 0"	295
20–30	17'5	4	84	150	4	9' 10"	335
10	—	1	80	140	3	6' 0"	135*

* Complete with two-seater body, hood screen and full equipment.

Jackson— *London.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
13–16	13'9	4	75	120	3	10' 0"	210
9–12	8	2	85	95	2	7' 0"	110

Kemnick— *Germany.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–16	12'1	4	70	100	3	9' 0"	260
16–20	15'9	4	80	130	4	10' 1"	400
20–30	20'1	4	90	140	4	11' 4"	475
30–40	24'8	4	100	140	4	11' 4"	550
30–60	27'3	4	105	160	4	11' 6"	675

K.R.I.T.— *America.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15–20	21	4	94	102	3	108"	150

La Buire— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
8–10	10'5	4	65	130	4	8' 7"	—
12	12'1	4	70	150	4	8' 10"	280
15	15'8	4	80	160	4	9' 5"	350
20	20'1	4	90	160	4	10' 2"	440
24	26'8	6	85	140	4	10' 8"	520
28	30'2	6	90	140	4	10' 8"	560

Above prices do not include tyres.

Lagonda— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
11	11'1	4	67	73	3	7' 6"	135*
20	20'1	4	90	120	3	10' 0"	390
30	30'2	6	90	120	3	11' 8"	500

* Complete car.

Lanchester— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
25	25'6	4	4"	4"	3	9' 6"	550
						10' 6"	575
38	38'4	6	4"	4"	3	10' 6"	800
						11' 6"	825

Lancia— *Italy.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
30	24'8	4	100	130	4	9' 8"	575†
						10' 6"	575

† Fully equipped with wire wheels, dynamo installation, electric horn, &c., &c.

Licorne— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
—	10'5	4	65	130	4	10' 0"	275
—	13'9	4	75	120	3	9' 3"	290
					4	9' 3"	240
					4	10' 0"	315

Loreley— *Germany.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–14	12'1	4	70	102	3	9' 2"	240
12–14	13'4	6	60	92	3	9' 2"	260
15	14'3	4	76	115	3	9' 7"	285
18–22	18'2	6	70	113	3	9' 10"	340

Lorraine Dietrich— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£†
12–16	13'9	4	75	120	4	9' 4"	360
							315§
18–20	20'1	4	90	130	4	10' 5"	495
							415§
40–75	38'8	4	125	170	4	—	760
							730§

† Without tyres.
§ Inclined steering.

M.A.F.— *Germany.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	11'5	4	68	90	3	7' 10"	190
12–14	12'8	4	72	96	3	7' 10"	200
						9' 0"	210

Marathon— *America.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
20	19'5	4	3½	4½	3	8' 8"	210†
30	28'9	4	4½	4½	3	9' 8"	295
40	32'5	4	4½	5½	3	10' 3"	375

The above prices include full equipment.
† Two-seater.

Marlborough— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
8–10	—	4	59	100	3 & R	9' 2"	160

Martini— *Switzerland.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–16	15'9	4	80	120	4	9' 2"	375
16–20	20'1	4	90	140	4	9' 10½"	475
25–35	—	4	—	—	4	10' 0"	590†

† Silent Knight model.

Mass— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	13'5	4	74	100	3	8' 2"	200
12	13'5	4	75	140	3	8' 8"	250
15	20'1	4	90	150	3	9' 0"	335
20	30	4	110	130	3	10' 6"	475
20–30	24	6	80	180	3	10' 8"	525

Mathis— *Germany.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
—	8'4	4	58	90	3	6' 7"	160
—	10'5	4	65	100	4	7' 4"	250
—	10'5	4	65	110	3	7' 0"	230
—	12'1	4	70	120	4	7' 6"	260
18–24	15'1	4	78	118	4	8' 4"	340
20–28	15'8	4	80	130	4	9' 6"	450
30–35	20'1	4	90	135	4	9' 6"	550
—†	24'8	4	100	140	4	—	—

† Knight engine.

Maudsley— *Coventry.*

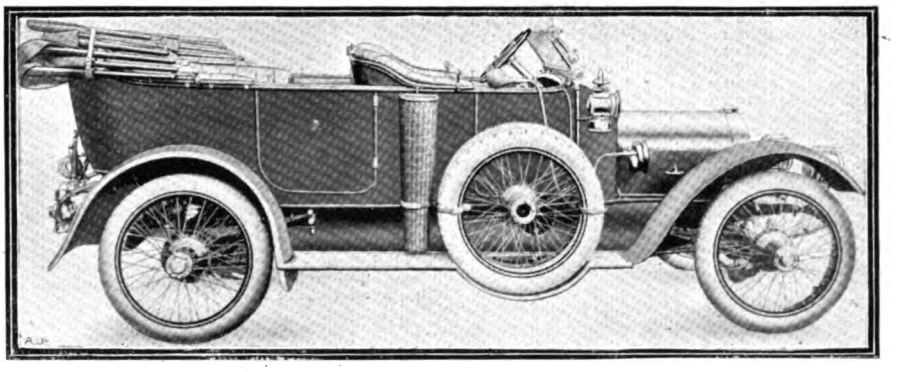
H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
17	20'1	4	90	130	4	10' 0"	425
						10' 6"	450
27	30'2	6	90	130	4	11' 5"	595

Maxwell— *America.*

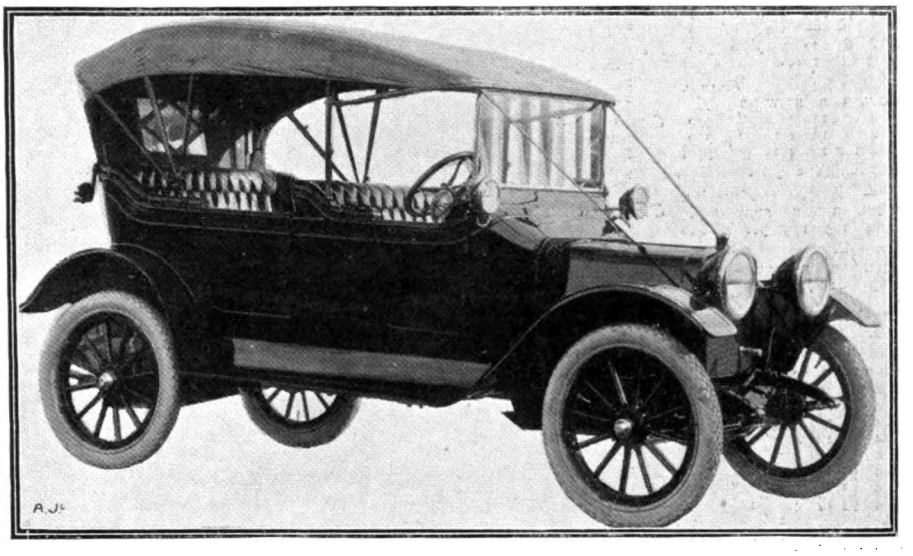
H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
22	25	4	4	4	3	102"	210

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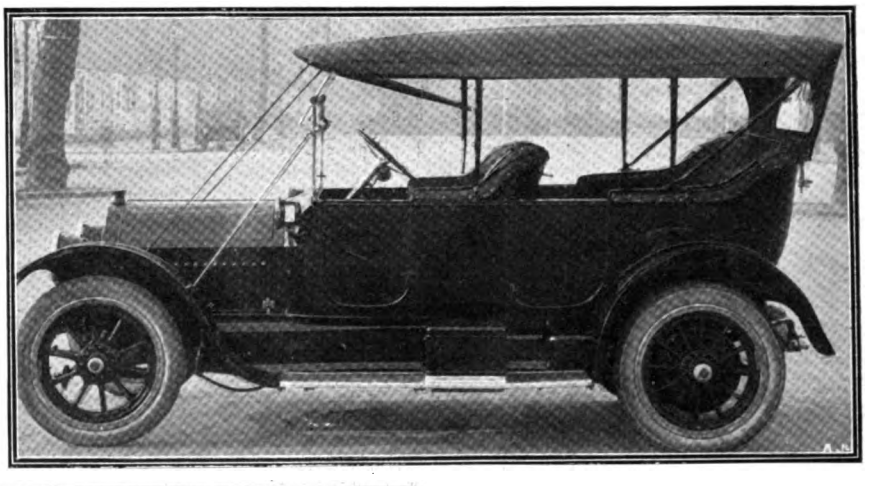
CARS: BRITISH, AMERICAN, AND FRENCH.



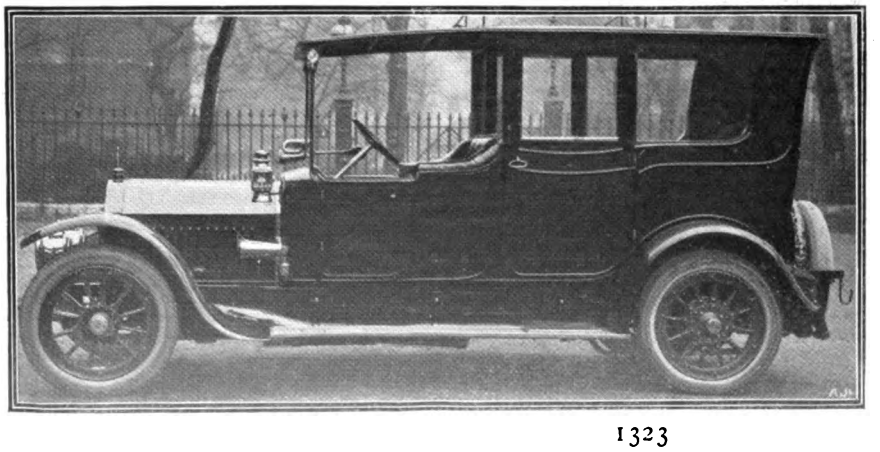
The Armstrong-Whitworth, illustrated as an open touring car as supplied to the War Office. Note the umbrella basket.



The R.C.H., a very attractive 15·9-h.p. five-seater at £225 complete.



The Cadillac, the oldest established American petrol car on the English market, and still unrivalled value for money.



The Berliet, second to none in France, and a splendid specimen of that country's automobile construction.

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Mercedes— Germany.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–15	12·1	4	70	120	4	9′ 0⅝″	350†
15–20	15·9	4	80	130	4	9′ 1″	450†
25–30	20·1	4	90	140	4	9′ 11″	600†
35–40	24·8	4	100	130	4	10′ 5″	750†§
35–40	30·0	4	110	130	4	11′ 3″	725†
45–50	35·7	4	120	160	4	11′ 3″	825†
35–40	30·0	4	110	140	4	11′ 4¾″	750†‡ |
45–50	35·7	4	120	160	4	11′ 4¾″	850†
65–70	48·6	4	140	160	4	11′ 6⅝″	1125†‡
80–90	41·9	4	130	180	4	11′ 6⅝″	1275†‡

Live axle.
‡ Chain drive, including chain cases.
§ Knight engine.
\| Colonial model.

Metallurgique— Belgium.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	13·9	4	75	96	4	9′ 0″	270
15–20	15·9	4	80	130	4	9′ 7′	385
20–30	20·1	4	90	140	4	11′ 0″	495
20–30	20·1	4	90	140	4	10′ 5″	525†
26–50	25·8	4	102	150	4	11′ 6″	625
26–50	25·8	4	102	150	4	11′ 7″	695†
38–80	38·8	4	125	150	4	12′ 0″	875
						11′ 0″	925†

† Light models.

Metz Lion— America.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
—	22·4	4	95	102	—	7′ 6″	125

Complete three-seater.

Minerva— Belgium.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14	13·9	4	75	120	4	9′ 6½″	340
18	20·1	4	90	130	4	10′ 8″	430
26	24·8	4	100	140	4	10′ 6″	535
38	38·2	4	124	150	4	10′ 9″	615

Mitchell— United States.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15–20	—	4	3 1/16	5½	3	100″	200
15–20	—	4	3 1/16	5½	3	125″	225
20–25	—	6	3 1/16	5½	3	125″	340
24	—	4	4½	7	3	120″	325*
35–50	—	6	4½	7	3	145″	475*

* Complete car.

Motobloc— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	10·4	4	65	120	3	8′ 9″	295*
12–22	15·9	4	80	120	4	9′ 1″	310
12–22	15·9	4	80	148	4	9′ 1″	360
16	20·9	4	90	130	4	10′ 2″	410
16	23·8	6	80	120	4	10′ 6″	450
20	23·8	6	80	148	4	11′ 0″	525
Type N.D.	20·9	4	90	160	4	10′ 2″	442†

* Complete car. † Special type.

N.A.G.— Germany.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–14	13·9	4	75	85	3	9′ 2″	250
14–20	13·9	4	75	118	4	9′ 8″	310
18–22	17·1	4	83	120	4	10′ 5″	410
20–25	20·1	4	90	130	4	11′ 0″	480
25–35	32·8	4	115	125	4	11′ 1″	650
50–60	42	4	130	160	4	11′ 1″	775

Napier— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	16·9	4	3½	5	3	8′ 10″	365
15	16·9	4	3½	5	3	9′ 10″	395
15	16·9	4	3½	5	4	9′ 10″	410
15†	16·9	4	3½	5	3	9′ 10″	398
30	25·6	6	3½	5	3	10′ 8″	595
38·4	38·4	6	4	5	3	11′ 6½″	850
59·9	59·9	6	5	5	3	11′ 2″	1,095

† Colonial model.

Nazarro— Italy.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
20–30	25·6	4	100	140	4	10′ 6″	495

N.E.C.— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
40	39·9	4	5	4½	4	10′ 9″ / 11′ 6″	780
30	32·5	4	4⅓	4½	4	10′ 6″ / 11′ 0″	640

N.S.U.— Germany.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	12·1	4	70	78	3	7′ 10″	215
14	13·9	4	75	88	3	8′ 9″	250
18	15·9	4	80	104	4	9′ 6″	310
20	17·9	4	85	115	4	10′ 2″ / 9′ 8″	365
24	23·3	4	97	115	4	10′ 4″	465

Opel— Germany.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
5–12	10·5	4	65	98	4	8′ 0″	200
6–16	12·1	4	70	100	4	9′ 4″	260
8–20	13·9	4	75	115	4	9′ 6″	300
8–30	12·1	4	70	135	4	9′ 6″	440*
10–25	17·5	4	84	118	4	10′ 9″	400
14–30	20·1	4	90	135	4	11′ 3″	450
18–40	27·3	4	105	135	4	11′ 8″	550
24–50	32·8	4	115	150	4	12′ 0″	600
25–55	35·7	4	120	144	4	12′ 0″	650
34–65	42	4	130	165	4	12′ 0″	700
40–100	48·6	4	140	165	4	12′ 0″	800

* Complete car.

Oryx— Germany.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–14	13·9	4	75	88	3	8′ 5″	250
18–24	17·9	4	85	115	4	10′ 0″	370

Prices are for four-seater cars.

Overland— U.S.A.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£*
20–25	25·6	4	4	4½	3	110″	235†
20–25	25·6	4	4	4½	3	110″	235‡
25–30	30·6	4	4¾	4½	3	114″	—‡

* Complete car. † Two-seater.
‡ Five-seater.

Paige Detroit— America.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
—	22·4	4	95	102	3	8′ 8″	250

Car complete with two-seater body, hood, screen, lamps, five detachable rims and self-starter.

Palladium— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£†
10–14	10·5	4	65	130	3	9′ 6″	198
12–16	13·9	4	75	120	3	9′ 6″	237
15–18	13·9	4	75	150	3	9′ 6″	258
18–24	—	4	—	—	3	11′ 0″	300
20–28	21·0	8	65	130	3	9′ 6″	310

† Less tyres.

Panhard— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12	12·1	4	70	140	4	9′ 2″	300
15	15·9	4	80	120	4	10′ 3″	350
25	24·8	4	100	140	4	11′ 4½″	590†

† Silent Knight engine.

Pathfinder— America.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
27·3	27·3	4	105	133	3	10′ 0″	410

Pearson-Cox— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	6·75	3	61	77	1	9′ 0″	330
					2	9′ 0″	356†

† Also made as Colonial model with high ground clearance.

Peugeot— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
6	7·5	4	55	90	2	6′ 11″	160*
12 Lion	11·3	4	68	130	4	8′ 3″	325*
12	12·1	4	70	130	4	9′ 1″	315
15	15·9	4	80	130	4	9′ 10″	360
16	15·9	4	80	140	4	10′ 6″	390
20	20·1	4	90	150	4	10′ 5″	450
22	21·0	4	92	150	4	10′ 4″	480
24	22·0	4	95	160	4	10′ 11″	545
						11′ 6″	525
						11′ 10″	560
30	24·1	4	100	160	4	10′ 11″	570
45	—	4	120	200	4	12′ 2″	1050†
						11′ 2″	1050†

* Complete car. † Valveless engine.

Phanomobile— Germany.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
—	8·3	2	82	84	2	6′ 3″	105
—	8·3	2	82	110	2	6′ 6″	140
						8′ 0″	150
—	13·6	4	74	90	2	8′ 0″	150

Phoenix— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
8–10	10·1	2	90	100	3	7′ 0″	158
11–9	11·9	4	69	100	3	8′ 0″	195
12–9	12·9	2	102	115	3	8′ 0″	220*

* Complete car.

Picard— Switzerland.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14–18	15·9	4	80	120	4	9′ 4″	380
16–20	15·9	4	80	140	4	10′ 6″	392
20–30	20·1	4	90	150	4	10′ 8″	520
20–30	20·1	4	90	170	4	10′ 6″	540†
30–40	24·8	4	100	150	4	10′ 11″	660
30–40	24·8	4	100	150	4	10′ 2″	660†

† Sporting model.

Pick— England.

H.P.	R.A.C	CYL	B	S	SP	WH-B	£
20	20·1	4	90	127	3	9′ 0″	150

Complete car with two-seater body.

Pilain— France.

H.P.	R.A.C.	CYL.	B	S	SP	WH-B	£
8–10	—	4	55	110	4	8′ 4″	220
10–12	—	4	65	120	4	8′ 4″	250
12–15	—	4	75	110	4	9′ 0″	290
15–18	—	6	65	120	4	9′ 2″	350
16–20	—†	4	90	120	4	9′ 2″	330
						9′ 8″	390
18–24	—	4	85	185	4	9′ 8″	430
20–30	—	4	100	140	4	9′ 8″	470
28–40	—	4	124	140	4	10′ 1″	570

Price does not include tyres.
† Leger.

Pilgrim— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
11·9	11·9	2	98	102	3	8′ 0″	220

Pilot— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	10·5	4	65	110	5	6′ 10½″	130

R.C.H.— America.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15·9	15·9	4	80	127	3	110″	225*

* Complete car.

Riley— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–18	12·9	2	102	127	3	9′ 0″	277
12–18	12·9	2	102	127	3	9′ 0″	277
10	11·2	2	96	96	3	8′ 0″	213⅓

Rochet— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	15·9	4	80	130	4	9′ 11″	340
18	22·4	4	95	140	4	11′ 0″	470
25	27·3	4	105	140	4	11′ 6″	578
18	23·8	6	80	120	4	11′ 3″	550
28	33·5	6	95	130	4	11′ 9″	670

‖Prices quoted are without tyres.

Rolls-Royce— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
40–50	48	6	114	121	3	11′ 11½″	985

Rothwell— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	15·5	4	3½	5	3	9′ 0″	285
20	25·6	4	4	5	3	9′ 6″	300

Rover— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12	13·9	4	75	130	3	9′ 2″	275
18	—	4	90	130	4	10′ 0″	375

Salmon— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
8	8·06	4	57	76	2	7′ 2″	100*
9–11	11·8	4	69	90	3	8′ 0″	165

* Complete with two-seater body.

Sava— Belgium.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14–18	13·9	4	75	140	4	9′ 10½″	295
18–26	16·6	4	82	140	4	10′ 6″	375
26–32	25·6	4	100	140	4	11′ 2″	475

All prices without tyres.

S.C.A.P.— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
—	15·9	4	80	140	4	10′ 3″	331
						11′ 0″	347

Schneider— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–14	12·1	4	70	120	4	9′ 8″	300
12–15	13·9	4	75	130	4	9′ 10″	325
15–20	15·9	4	80	140	4	10′ 4″	375
18–24	22·4	4	95	140	4	11′ 0″	475
25–30	30·0	4	110	160	4	11′ 10″	550
20–25	20·9	6	75	120	4	10′ 6″	515
16–30	16·9	4	82·5	140	4	—	450†

† Sporting model.

Scout— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	11·9	4	69	125	4	9′ 0″	245
12–14	15·9	4	80	130	4	9′ 5″	285
18–22	20·1	4	90	140	4	9′ 8″	380
24–28	25·8	4	102	140	4	9′ 8″	460

Seabrook R.M.C.— America.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£*
18–20	22·5	4	95	114	3 & R	9′ 0″	225
25–30	28·7	4	108	114	3 & R	9′ 10″	350

Including electric side and tail-lamps, battery, acetylene headlamps and generator, tools, horn and jack, dual ignition and demountable rims.
* Complete car.

Sheffle d-Simplex— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
25	29·4	6	89	127	3	10′ 6″	600
						11′ 3″	625
30	29·4	6	89	127	4	12′ 0″	695
45	48·6	6	114	114	2	11′ 3″	750
						12′ 3″	800
45	48·6	6	114	114	3	11′ 3″	800
						12′ 0″	835

Singer— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14	15·1	4	78	125	4	9′ 3″	315
15	15·9	4	80	130	4	9′ 9″	370
20	20·1	4	90	130	4	9′ 9″	425
						11′ 0″	435
25	24·8	4	100	130	4	11′ 0″	525

Sirron— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14–20	15·9	4	80	120	3	8′ 10″	265
14–20	15·9	4	80	120	3	9′ 3″	290

Sizaire— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
9	—	1	120	120	3	7′ 6″	175*
15	—	4	70	170	3	9′ 10″	270†

* Complete car with two-seater body.
† Without tyres.

S.P.A.— Italy.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–15	12·1	4	70	120	4	8′ 10½″	335
16–20	17·9	4	85	120	4	9′ 2″	395
25–30	24·8	4	100	140	4	9′ 2″	475
25–30	24·8	4	100	140	4	10′ 2″	565
50	30	4	110	200	4	10′ 8″	715

Springuel— Belgium.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
—	13·9	4	75	120	4	9′ 6″	325
						10′ 0″	325
—	20·1	4	90	120	4	9′ 6″	420
						10′ 0″	420
—	27·9	4	106	130	4	10′ 0″	555

Spyker— Holland.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12	11·9	4	69	120	4	9′ 0″	270
14	12·8	4	80	120	4	9′ 0″	315
20	20·1	4	90	135	4	10′ 0″	430
20	27·9	4	106	130	4	11′ 0″	537
30	30·0	4	110	160	4	11′ 6″	580
40	35·7	4	120	160	4	11′ 6″	710
20–30	30·2	6	90	110	3	11′ 6″	625

Above prices do *not* include tyres.

Standard— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	15·6	4	79	121	3	9′ 6″	300
20	19·6	4	89	133	4	10′ 0″	375
						10′ 6″	375

Stanley— U.S.A.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	11	2	3½	4½	—	104″	230
20	—	2	4	5	—	115″	340

Both engines have double-acting cylinders.

Star— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	15·9	4	80	120	3	8′ 4″	215
12–15	15·9	4	80	120	4	9′ 4½″	265
15·9	15·9	4	80	150	4	10′ 3″	300
20·1	20·1	4	90	150	4	10′ 3″	350
23	23·8	6	80	120	4	10′ 6″	375

Stoddard— America.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
20	25	4	4	4½	3	112″	285

Stoewer— Germany.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
—	13·9	4	75	88	4	8′ 6″	220
—	15·8	4	80	120	4	9′ 10″	325
—	30·0	4	110	130	4	10′ 9″	600

Straker-Squire— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	18·8	4	87	120	3 & R	9′ 3″	300†

† Without tyres

Sunbeam— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–16	15·9	4	80	150	4	9′ 9″	350
16–20	20·1	4	90	160	4	10′ 3½″	460
25–30	30·1	6	90	160	4	11′ 2″	585

Swift— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	10·5	4	65	100	3	7′ 8″	175
12	13·9	4	75	110	4	9′ 0″	275
15	20·1	4	90	120	4	10′ 0″	375

Talbot— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12	15·8	4	80	120	4	9′ 4″	350
						10′ 0″	395
15	20·1	4	90	140	4	9′ 11″	425
						10′ 7″	440
20	23·8	6	80	120	4	10′ 4″	565
						11′ 0″	580
25	25·6	4	101·5	140	4	9′ 11″	515
						10′ 7″	530

Thornycroft— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
18	25·6	4	4	4½	3	10′ 0″	418

Turner— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	8·9	4	60	100	2	8′ 0″	175
10	8·9	4	60	100	3	8′ 0″	188
12	11·9	4	69	110	4	9′ 0″	250
10	8·9	4	60	100	4	8′ 0″	215

Turcat Mery— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14	15·9	4	80	130	4	3·09	360
						3·24	380
18	20·1	4	90	130	4	3·09	410
						3·34	430
25	24·8	4	100	130	4	3·17	520
						3·42	540
35	30·0	4	110	160	4	3·38	720

Above prices do *not* include tyres.

Unic— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	10·5	4	65	110	4	9′ 0″	235
12–16	13·9	4	75	120	4	10′ 2½″	310
16–24	20·1	4	90	130	4	10′ 4″	350

Vauxhall— England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
16–20	20·1	4	90	120	4	9′ 9″	395
25	23·9	4	95	140	4	9′ 9″	495†
25	23·9	4	95	140	4	10′ 7″	495
35	33·75	6	95	120	4	11′ 8″	625

† Prince Henry Model.

Vermorel— France.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
8–12	11·2	4	66	110	4	8′ 3″	285
12–16	13·5	4	74	120	4	9′ 3″	285

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Vinot— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-14	12·1	4	70	110	3	8′ 7″	295†
						9′ 0″	335‡
15-20	15·9	4	80	130	3	9′ 10″	330
25-30	25·3	4	101	130	3	10′ 0″	460

† Complete two-seater.
‡ Complete four-seater.

Vivinus and F. A.B.— *Belgium.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-15	13·9	4	75	110	3 & R	9′ 9″	275
16-20	20·1	4	90	110	3 & R	10′ 0″	325
24-30	27	4	106	130	3 & R	10′ 6″	425

Vulcan— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10-15	15·9	4	80	120	3	8′ 9″	235
15·9	15·9	4	80	120	4	8′ 10″	285
15-20	15·9	4	80	150	4	9′ 8″	325
						10′ 2″	
25-30	29·4	6	89	120	4	10′ 3″	425

Waverley—

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	10·9	4	65	130	3 & R	9′ 2″	200
12	13·9	4	75	120	3 & R	9′ 2″	225

White— *U.S.A.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
30	22·4	4	3¼″	5⅛″	4	9′ 2″	—

Withers— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
20	20·1	4	90	130	4	9′ 6″	430
25	24·8	4	100	130	4	10′ 3″	500
30	30·0	4	110	130	4	10′ 8″	560
35-40	35·7	4	120	130	4	10′ 8″	600

Wolseley— *England.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£*
16-20	20·3	4	3 1/16″	4 3/4″	4	10′ 3″	460†
						10′ 9″	600‡
24-30	30·4	6	3 1/16″	5⅛″	4	10′ 11″	675†
						11′ 5″	800‡
50	48·6	6	4⅛″	5½″	3	11′ 12′	9″ 3″ 1100† 1225‡

* Complete car. † Open car.
‡ Landaulette.

Zebra— *France.*

H.P.	R.A.C	CYL	B	S	SP	WH-B	£*
6	4·8	1	88	106	3	6′ 0″	145
6-8	6	4	50	100	3	6′ 8″	165
11·9	11·9	4	68	120	3	8′ 7″	260

* Complete car.

Zedel— *France.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
14 20	12·8	4	72	120	4	8′ 2″	290
25-30	20·1	4	90	140	4	10′ 0″	475

REVIEWS OF BOOKS.

From the Car Behind.

ALTHOUGH many novels, in which the motor car has played a prominent part, have been written, there are very few in which the efforts of the writers have been rewarded with success. One notable exception, however, has recently been published by Messrs. Lippincott from the pen of Miss Eleanor Ingram. Although it hails from the "other side" that fact need not deter anyone from including the book in their library list, as the authoress does not surfeit us with smart American slang, but there is just sufficient witty repartee to add a pleasant piquancy to the telling of the tale. It would be unfair to give away the plot of the story, but it may be said that it is woven round incidents connected with the driving of racing cars. During a practice spin, the driver of one car was stunned by a spanner thrown "from the car behind," and thereby hangs the tale. It is wholly original, and the way the authoress has dealt with it shows that she has made herself thoroughly acquainted with the atmosphere of the racing "camps," which are attached to some of the American motor car firms. There is a love story with its necessary complications, but it all fits in to make one of the best books of the year, and one which we venture to think may do some good by showing the typical American as he is, instead of as we are too often led to think he is. At any rate, the impression left after reading the book is that our American cousins are not nearly so bad as they are often painted.—*Lippincotts.* Price 6*s.*

The "Demon."

THERE are some who say that the later romances of C. N. and A. M. Williamson do not quite come up to the standard of the "Lightning Conductor" and their earlier works, but we venture to think that this criticism is not always justified. At any rate in the "Demon" these authors have given us another delightful motor car story, which suffers nothing from the fact that it makes its first appearance in Messrs. Methuen's shilling library. This series is splendidly printed, tastefully and strongly bound in blue cloth, and being of a handy size, can be readily slipped in the coat pocket. To return to the story: it is mostly concerned with an American who stepped into his brother's dollars when the latter mysteriously disappeared in Morocco; an Anglo-American duchess and her eligible daughter, who is uncertain as to whether the American millionaire or an Italian prince will make the best catch; and the American's secretary. It details their adventures in Corsica, and in the telling of their story the authors deftly give us some delightful word pictures of the scenery of Napoleon's island. The principal adventure is the turning up of the daughter of the American's missing brother and this eventually led to the splitting up of the party, the ducal guests deciding to accept the hospitality of the Prince's yacht, while the American goes over to Pisa to rummage out an old priest who was able to give details as to the brother's marriage in Tripoli. Of course, all the journeying in Corsica and Italy is done by motor car, and the "Magic Carpet," as it is called in this case, might be included among the principal characters. As we have already said it is a delightful story and one with a special appeal to motorists, many of whom will doubtless be led to think of making acquaintance at first hand with the setting of the tale.—*Methuen.* Price 1*s.*

Ten Years of Motors and Motor Racing.

QUITE apart from the fact that many old friends of Mr. Charles Jarrott will welcome the new edition of his book bearing the above title, which first appeared half a dozen years ago, there are a very large number who have come into the motor movement in recent years who know very little of the early days, and to them the volume should have a very special interest. Mr. Jarrott has been wise in leaving the book as it originally appeared, and although the cost is now only half a crown, it contains all the original illustrations, some forty in number, as well as the coloured frontispiece—a cartoon of Mr. Jarrott by "Spy." Any attempt to have added a chapter dealing with later happenings in order to bring the book "up-to-date," would, we think, have been foredoomed to failure, and it is much better to have the book remain as a record of ten years of pioneer work. From that point of view the book has, and always will have, a value all its own, and there should not be anyone, who takes the slightest interest in motoring, who should hesitate to include the book in his library, or if his literary tastes do not go to such a length, to find a *niche* for it on his bookshelf. He will always find something interesting in it to while away a pleasant half hour even although like ourselves, after obtaining the book, he will have found it impossible to lay it down without reading it from cover to cover.—*Grant Richards.* Price 2*s.* 6*d.*

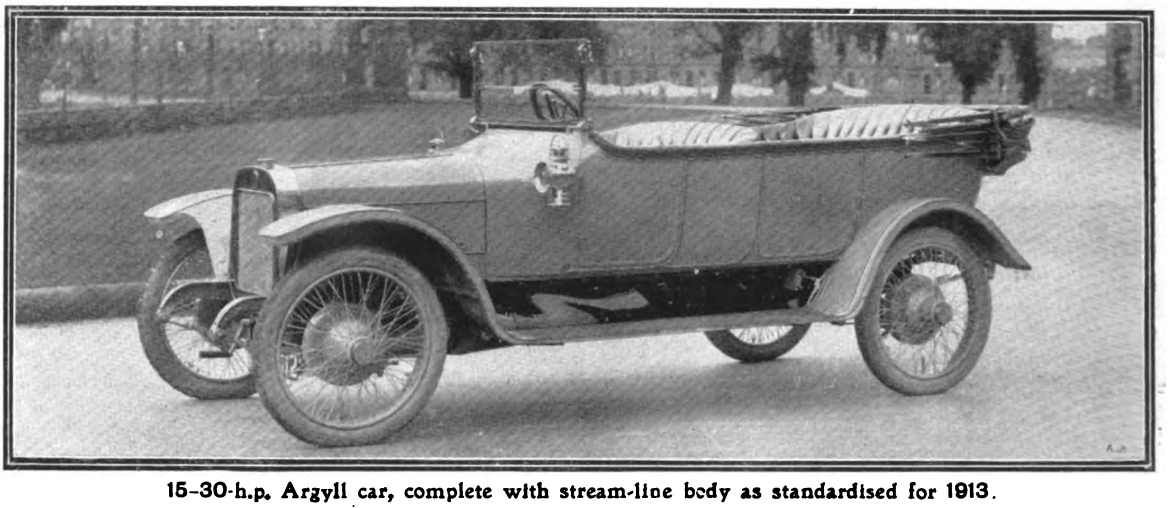
The Autocar Road Book Vol. III.

IN the last addition to this series of route books Mr. Charles G. Harper takes the reader over the roads in East Anglia and the area bounded by Nottingham, Lincoln, and Boston, including the great North Road from London to Newark. Those who are acquainted with the previous volumes will doubtless see to it that they get this new one, while for those who do not know Mr. Harper's work it may be said that it provides motorists with the best routes from place to place, the distances between them, the quality of the roads, and topographical and antiquarian information for those who take more than a passing interest in the towns and villages passed on the way. London is taken as a centre, and from it the course of the great historic trunk roads are traced and then the subsidiary routes branching from them. A special feature of these volumes is the simple way of setting out the information in columns, so that it is easy of reference quite irrespective of whether the route is followed as printed or in the reverse direction.—*Methuen and Co.* Volume III. Price 7*s.* 6*d.* net.

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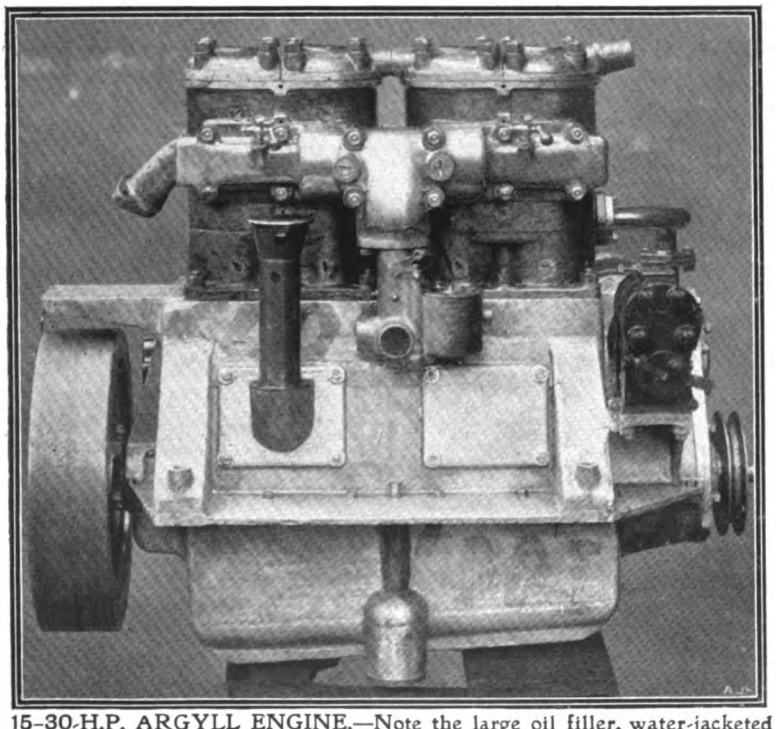
ARGYLL CARS.

To all those who have followed the development of Argyll cars, especially since the introduction of their single-sleeve valve engine, it will not be surprising to hear that no alterations of any consequence are to be found in their models for 1913. This, however, should be taken to apply to the chassis only, because the body-work, which, as is well known, is also manufactured at the company's own works, has been entirely re-designed and with the happiest results.



15-30-h.p. Argyll car, complete with stream-line body as standardised for 1913.

A few weeks ago we had the pleasure of being conducted over the company's works at Alexandria by their courteous managing director, Mr. J. S. Matthew, and before going into the details of the new models, it may be of interest to our readers to know something about the conditions under which they are made. We need hardly say that the Argyll works rank amongst the finest in the country. But not satisfied with this the directors are continuously endeavouring to keep them up to date in every respect. Only recently the huge plant of machine tools has been augmented considerably; further grinding machinery has been installed, and automatic machines for accurate manufacture in quantity. All these additions to the plant have been effected with a view to a considerably increased output during the coming season. "If you want a job done well, do it yourself," seems to have been the motto that guided the directors when reorganising their works, with the result that nowadays every part of Argyll cars, chassis as well as bodies, is actually manufactured on the company's premises, magnetos, sparking plugs, tyres and such-like articles forming the only exceptions to this rule.

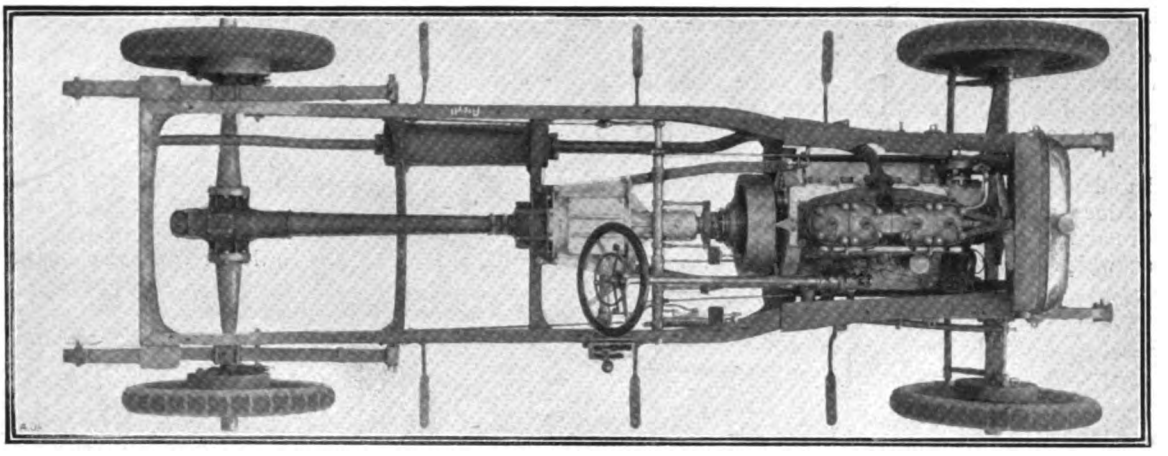


15-30-H.P. ARGYLL ENGINE.—Note the large oil filler, water-jacketed induction-pipe, and dynamo platform over fly-wheel.

By adopting this policy the directors not only make sure of the quality of their cars, but they are better able to guarantee delivery of the finished article at specified times than if they had to depend for some of the parts on outside firms. Thus it is that not only all castings, iron, steel and aluminium, are produced on the premises, but a stamping plant —by no means frequently found in motor works—has been added, where all stampings are manufactured. It has been one of the aims of Argyll engineers to eliminate malleable castings as much as possible and to replace them by steel stampings, but it is hard to say whether this endeavour has caused the stamping plant to be erected or whether the erection of the stamping plant has demonstrated the undoubted superiority of steel stampings over malleable castings to such an extent that hardly any malleable castings are to be found nowadays in the Argyll chassis.

Particular attention has been paid to the coach building department, which occupies a considerable portion of the company's works, and where coachwork of the very highest class is manufactured. In going over this part

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Plan view of the 15-30-h.p. Argyll chassis.

of the works we could not help being impressed by the predominance of closed bodies over the open type, which to our mind is a sure sign of the quality that is put into Argyll coachwork for the enclosed body is the most difficult of all coachwork to build properly, and only those of considerable means can afford to buy the luxurious landaulettes and limousines that are now turned out in such numbers by the Argyll Co. It is a strong point, too, for the silence of the engine and the transmission, that they are successful.

As in previous years, three models are placed on the market. The smallest of the trio, which was known as the 12-h.p., will in future be called the 12-18-h.p., and is chiefly intended to be used with a two-seater body. It is in this chassis that most of the alterations are to be found, and it is the only one in which a poppet valve engine has been retained. Its four cylinders have a bore of 72 mm. and a stroke of 120 mm., the same as last year, but by lightening the reciprocating parts and especially by increasing the diameter of the valves the power output of the motor has been increased so much as to more than justify the increased rating. Hand-timed magneto ignition has taken the place of the old fixed firing point, and diagonally compensated rear and front wheel brakes are fitted instead of the orthodox rear wheel and transmission brake. Detachable artillery wheels will be fitted as standard and the chassis with spare wheel and tyre 765 by 105 mm. will be sold at £285, while the complete car with two-seater body one-man-hood screen, lamps and tool kit is priced at £355.

Of the other two models, which are both fitted with the by now well-known Argyll single-sleeve valve engine, the larger one, rated by the makers as 25-50-h.p. is substantially the same as the 25-h.p. chassis which created such a sensation at the Olympia Show last year. The only alteration noticeable in this engine is a slightly altered induction pipe, the central part of which is water-jacketed so as to assure complete vaporisation of the fuel. There is, however, one very marked difference between the new Argyll sleeve-valve engine and that of last year, which, however, is not apparent to the casual observer, viz., the discarding of the junk-ring in the cylinder head. Exhaustive experiments have shown that it is possible to dispense with it without loss of compression. No other alteration has been found necessary throughout the design of the chassis, and the engine dimensions remain unaltered at 100 mm. bore by 130 mm. stroke. Four speeds and a reverse are provided in the gear-box, which, with the engine is supported in a subsidiary frame. The propeller-shaft is enclosed by a substantial tube which takes the torque as well as the driving strain; the final drive in the rear axle is by overhead worm gear. This chassis, complete with detachable wire wheels shod with 895 by 135 mm. tyres, is sold at £635, or fitted with landaulette or limousine body and fully equipped for the road it costs £875.

Although the 15-30 h.p. model has been delivered to clients for some considerable time, it has never before been shown at Olympia and for this reason alone we feel sure will attract the attention of all those who want to see the very latest example of the "fifteen-point-nine." It is equipped with an Argyll single-sleeve valve engine of 80 by 130 mm. and is an exact replica of the above described 25-50 h.p. model. As a chassis its price is £450 which includes five detachable wheels and tyres, grooved Dunlops 815 by 105 mm. It is, however, the complete touring car that struck us as a particularly smart and well turned out vehicle. The outline of its bodywork is extremely graceful and artistic and the quality put into the coachwork is beyond reproach, as we had ample opportunity to notice when passing through the shops and seeing these bodies in various stages of manufacture. Completely equipped with spare-wheel and tyre, Argyll patent one-man-hood, screen, horn, lamps, tool kit, &c., the car is offered at £575, while it can be purchased without the equipment at the reduced price of £525.

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Australia and Motor Cycle Magnetos.

A NEW by-law has just been made by the Commonwealth Custom Authorities, providing for the free importation of magnetos for motor cycles, provided security is given that they will be incorporated in motor cycles manufactured in the Commonwealth, and that proof of such use is furnished to the satisfaction of the collector within six months after delivery by the customs.

NOTICE.

The AUTO. at OLYMPIA.

Stand No. 12.

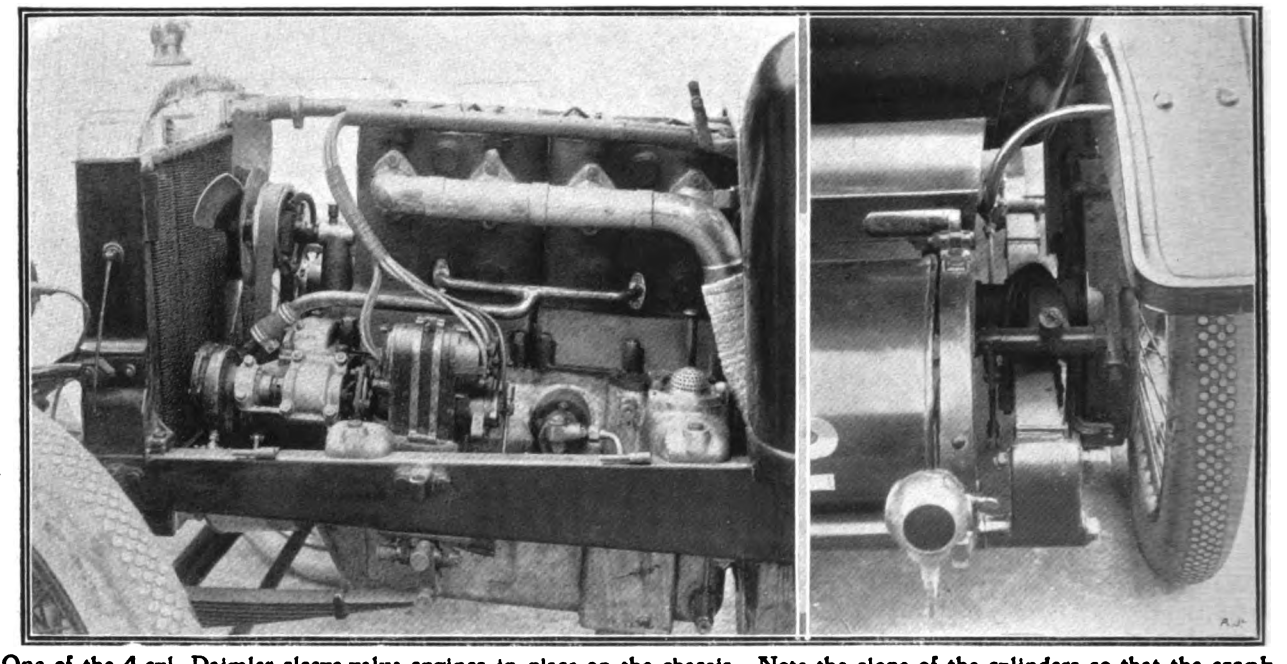
Telephone: Regent 2313.

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DAIMLER CARS FOR 1913.

Two entirely new models have been introduced for 1913, one having four cylinders and the other six. The dimensions of both are 101·5 by 140 mm., that is to say they belong to the famous "4-inch" class, than which there is no engine more popular for the heavy touring car of to-day. It is deservedly so, too, for the 4-inch engine does not encroach upon the cumbersome, but while retaining much of the liveliness of the lighter motors, which have had the field so much to themselves of late, it nevertheless affords a starting torque at slow speeds that is exceedingly useful in manœuvring the modern luxurious limousine. We can see, both for the four-cylinder model and for the six, a wide sphere of utility among those motorists whose means permit them to purchase the more luxurious cars of this type. The six-cylinder model is, of course, a veritable car de luxe in itself, and the six-cylinder engine is not only far more powerful than the former but it also affords all the advantages and refinements of even turning moment that are associated with the six-cylinder principle. The four-cylinder 4-inch Daimler car, however, will appeal to a great many people as giving them exactly what they want, especially when the chassis price is only £575.

No one will be surprised to learn that the "fifteen" "twenty," and "thirty" Daimler cars of 1912 still remain on the list for 1913. In their respective classes it would be difficult to find more popular machines. The "fifteen" appeals to everyone in need of a light and moderate priced vehicle. The "twenty" and the "thirty" have four and six-cylinder engines respectively of the 90 by 130 mm. dimensions, and it is safe to say that, among the moderate powered cars, there has never been an engine produced to excel the merits of the 90 by 130 ratio of bore to stroke. The 15-h.p. model has a



One of the 4-cyl. Daimler sleeve-valve engines in place on the chassis. Note the slope of the cylinders so that the crank-shaft is in line with the back axle. Also note the flexible coupling in the magneto drive, which consists of a simple leather ring. On the right is a photograph illustrating the underslung rear springs on Daimler cars, which have still further improved the comfort of their already easy riding suspension.

Summary of the 1913 Daimler Cars.

	15-h.p.	20-h.p.	26-h.p.	38-h.p.	30-h.p.	Special Model.
No. of cylinders	4	4	4	4	6	6
Bore and stroke	80 × 130	90 × 130	101·5 × 140	124 × 130	90 × 130	101·5 × 140
R.A.C. rating	15·9	20·1	25·4	38·1	30·1	—
Ignition	Dual	Dual	Dual	Dual	Dual	Dual
Clutch	Cone	Cone	Cone	Cone	Cone	Cone
No. of speeds	3	4	4	4	4	4
Final drive	Worm	Worm	Worm	Worm	Worm	Worm
Wheel-base	10 ft. 3½ ins.	10 ft. 3½ ins.	11 ins.	11 ins.	11 ft. 6½ ins.	11 ft. 11 ins.
Track	4 ft. 4 ins.	4 ft. 8½ ins.	4 ft. 8½ ins.	4 ft. 8½ ins.	4 ft. 8½ ins.	4 ft. 8½ ins.
Weight of chassis	16½ cwt.	18 cwt.	23 cwt.	25 cwt.	25 cwt.	28 cwt.
Ground clearance	7¾ ins.	8½ ins.	8½ ins.	7¾ ins.	7¾ ins.	8½ ins.
Extreme width of car	5 ft. 8 ins.	6 ft.	6 ft.	6 ft.	6 ft.	6 ft.
Extreme length of car	14 ft. 1 in.	14 ft. 1 in.	15 ft. 3 ins.	15 ft. 3 ins.	15 ft. 10 ins.	16 ft. 2 ins.
Size of tyres	870 × 100	875 × 105	920 × 120	920 × 120	920 × 120	935 × 135
Speed on direct drive (at 1,000 revs.)	23·5 m.p.h.	25 m.p.h.	30 m.p.h.	32·5 m.p.h.	26 m.p.h.	30 m.p.h.
*Gear ratio: 1st speed	16·7 to 1	15·8 to 1	10·9 to 1	10·1 to 1	12·7 to 1	10·9 to 1
2nd speed	7·2 ,, 1	8·7 ,, 1	7·4 ,, 1	6·8 ,, 1	8·5 ,, 1	7·4 ,, 1
3rd speed	4·4 (direct)	5·9 ,, 1	4·7 ,, 1	4·4 ,, 1	5·5 ,, 1	4·7 ,, 1
4th speed (direct)	—	4·1 ,, 1	3·5 ,, 1	3·3 ,, 1	4·1 ,, 1	3·5 ,, 1
Chassis price	£380	£430	£575	£625	£650	£850

* A higher or lower gear ratio than standard can be supplied.

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lengthened wheel-base of 10 ft. 3 inches, but otherwise remains unchanged; the 20-h.p. type has only been altered in one or two minor details, but the 30-h.p. six-cylinder model has been modified considerably in its gear-box design and in respect to the rear suspension. These latter remarks also apply to the famous 38-h.p. four-cylinder Daimler car, which is a truly remarkable model, seeing that it contained the original sleeve-valve engine and is now in its sixth year of successful running.

An interesting feature of the new engines is a *desaxé* setting of the cylinders 13 mm. out of the line from the centre of the crank-shaft. Another departure from previous practice is to be noted in the placing of the pump and magneto shafts parallel with the crank shaft, so as to dispense with the spiral gears and reduce the overall length of the engine under the bonnet.

Instead of fitting a sight feed device on the dashboard, as an indication to the driver of the state of his lubricating arrangements, a special plunger gauge is provided alongside the filler cap at the rear end of the crank-case.

This is so placed that the driver can conveniently test the working of the pump whenever he replenishes the oil supply. The opening of the filler cap likewise opens an oil level tap below the base chamber, which is so constructed that surplus oil flows straight through and immediately indicates when sufficient has been placed in the sump.

A dynamo for electric lighting is a standard fitting this year, and is driven by a belt from a pulley on the front of the crank-shaft.

No change has been made in the leather cone-clutch, but the size of the universal-joint between the clutch and the gear-box has been increased. Also, the gear-box has its permanent mesh-gears at the front end, which tends to facilitate quiet gear changing. Four speeds are provided as standard on all models, except the "fifteen."

The sliding joint of the propeller shaft is retained immediately behind the gear-box as it was last year, this practice tending to reduce the telescopic motion and, therefore, increase the life of the surfaces. By slinging the rear springs under the axle, which is a new feature of this year's suspension, the frame is lowered slightly and smoother driving and braking action appear to result. The brakes, by the way, remain as before; that is to say the foot brake acts on the rear hubs while the hand lever controls a brake drum behind the gear-box. The rear brakes, however, have been increased in diameter and width, and improved facilities have been provided for their adjustment. In the steering gear, a complete worm wheel is now fitted instead of a quadrant in order to provide an opportunity for taking up wear. Special taper roller bearings are used to facilitate the adjustment of the thrust.

At last the Daimler Co. is fitting an accelerator pedal as a standard feature of the control, and as we are such strong advocates of the accelerator being fitted on all cars, we need say no more than is necessary to record the fact, for our decided approval may be taken for granted.

* * * *



The Kaiser William at the Swiss Army Manœuvres in the 30-40-h.p. Piccard-Pictet sleeve-valve engined car, which served His Majesty during the entire manœuvres.

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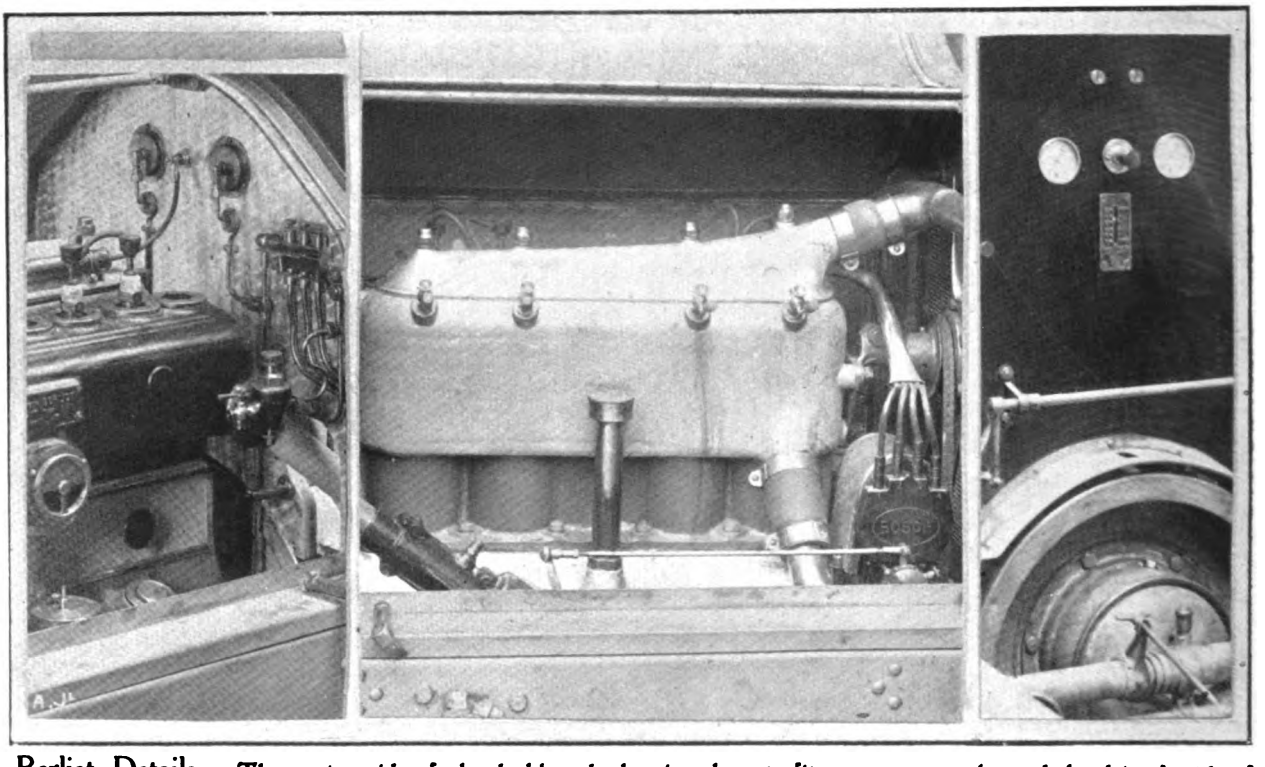
THE 20-25-H.P. BERLIET.

EVER since Messrs. Berliet commenced to make motor cars at Lyons, a chassis of between 20 and 25-h.p. has figured prominently in their programme, and, indeed, we even go so far as to say that this type of car has generally formed their *pièce de résistance* in chassis design. It is, therefore, not surprising that Messrs. Berliet Motors, of 40, Sackville Street, who represent the famous French firm in this country, should make the model in question the "attraction" of their stand at the Olympia Show.

Built in accordance with the most up-to-date practice, and of the very best materials, the engine of this car has a bore of 100 mm. and a stroke of 140 mm.; in short, it belongs to the famous "Four-Inch" class. It can develop more than sufficient power for the needs of the ordinary exacting owner, and that with ease, but the reserve does not obtrude itself through the refined docility that makes the machine such a charming car to drive under all conditions of use, and the merit of its presence is infinitely the greater on that account.

The engine is powerful, the chassis is strong; and it need be. It has to do heavy work, it has to be capable of supporting luxurious coachwork and of travelling fast over rough roads. On the Continent and in England the Berliet cars are alike famous, and it is an achievement of which to be proud. As a piece of engineering the Berliet chassis is a study in itself. Clean in outline, yet replete in detail; accessible, yet unobtrusive. The cylinders are cast monobloc, but with ample water space around valves and walls. Also, the crank bearings are long. Pump circulation for cooling water we notice now replaces the thermo-syphon system of last year.

More than usual attention has been paid to the lubrication. The forced feed system, which supplies all the engine bearings, is extended to the main units of the transmission system, so that gear-box, universal joint and back axle are continuously kept supplied with lubricant by the pump in the base-chamber. As can be seen in one of our illustrations, the pipe that connects the pressure system of the engine lubrication to the gauge on the dashboard has been branched off, and the branch is led to a drip feed oiler on the engine side of the dashboard. From here three pipes lead to the transmission, one each to the gear-box, universal joint and back axle respectively. The speed of these drips can be regulated to a nicety, so that the lubrication of the transmission system is simplified considerably. An occasional inspection of the quantity and the condition of the lubricant in the various transmission units is all that is needed. Another valuable refinement of the lubricating system of this engine is the fitting on the dashboard of an indicator of the oil lever in the crank-case. It consists of a simple pointer working up and down on a scale, and is operated in the simplest possible way by a float in the oil sump. The indicator is clearly visible in another illustration of the dashboard underneath the two gauges.



Berliet Details.—The engine side of the dashboard showing how to fit gauges properly, and the driver's side of the dashboard showing how to make gauges look neat. In the middle view is the Berliet engine, a picture of neatness in itself.

Motorists of some years' standing will surely remember the striking successes of Berliet cars, especially in petrol consumption trials The earlier Berliet carburettor has been replaced by a device which is more in accordance with modern ideas than its predecessor. It is claimed for the new carburettor, which is of the two-jet type, its economy is equal at least to that of the old model and that it makes the engine considerably more flexible besides being easier to start. Without a doubt, it is one

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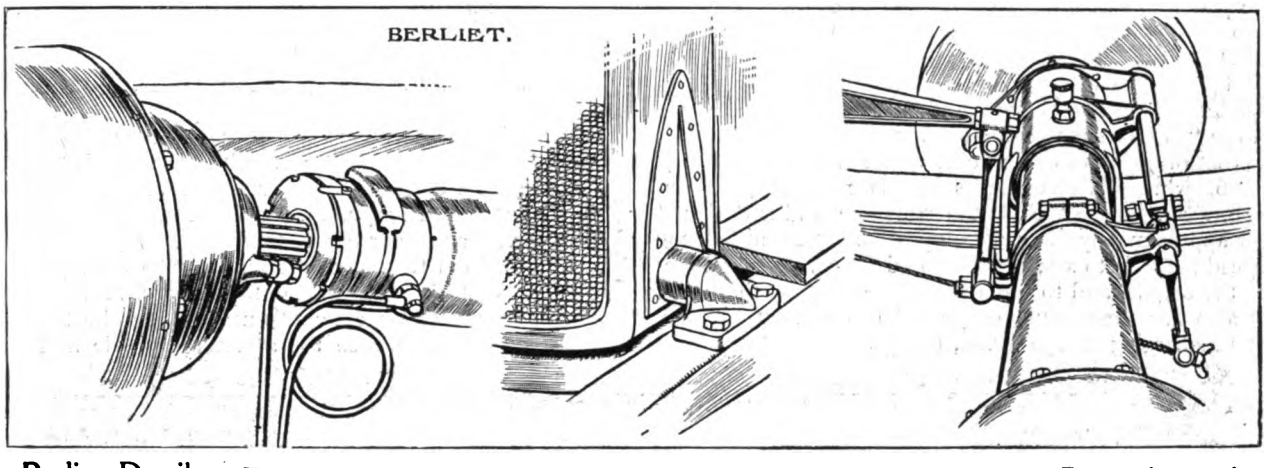
of the most accessible and simple carburettors one could wish to see. As in previous models, the petrol is carried in a tank at the rear, and is forced up to the carburettor by exhaust pressure. The capacity of the tank, however, has been improved considerably and its suspension from an extension of the main frame is a very neat detail.

The Bosch high-tension magneto forms the mainstay of the ignition, and is placed in an accessible position on the off side of the engine, where it is operated by a worm-driven cross-shaft. A cover is fitted to protect the magneto from its chief enemies, dust and wet.

No alterations have been made in the design of the clutch, which is of the multiple disc type, of good size and well provided with means for lubrication. A universal joint has taken the place of the old square coupling between clutch and gear-box. The latter rests on a cradle formed by two cross girders of the chassis, ing the tube, just in front of this wheel, on to the ball race behind it. Thence it reaches the bevel gear and differential casing by gravity. The new rear axle casing is a very fine engineering job; it has been entirely re-designed owing to the fact that the rear springs are now underslung.

Berliet suspension is well worth study, because, in addition to very large three-quarter elliptic rear-springs and semi-elliptic front-springs, shock-absorbers are standard fittings on both axles. The Berliet brakes are excellent, and further comment in this short description would be superfluous.

Artillery wheels shod with 880 mm. by 120 mm. tyres are standard fittings, but detachable wheels can be supplied at a slight increase of cost. The chassis can be supplied in two lengths of wheelbase, 10 ft. 4 ins. or 11 ft., the track in both cases being 4 ft. 10 ins. Motorists and



Berliet Details.—The independently lubricated universal-joint and propeller-shaft casings on the Berliet chassis, the trunnion mounted radiator, and the underslung rear spring.

and in connection therewith it is interesting to note that the engine is supported in a similar manner. The counter-shaft in the gear-box is fitted underneath the main shaft, which makes for good lubrication, and the circular lid of the box can be removed without the aid of tools, which promotes confidence in the quality and accessibility of other parts. Four speeds forward and a reverse are provided, with a direct drive on the top gear; the final drive is by propeller shaft and bevel gearing. The lattice girder torque stay used for a number of years has given place to a propeller shaft casing, but the drive is still transmitted through the springs. The universal joint behind the gear-box is particularly interesting, because it is kept supplied with lubricant from the engine; the front end of the propeller shaft is serrated so that a telescopic joint is formed at this point in addition to the universal movement permitted by the main joint. The oil feed to the back axle is led into the front end of the torque tube in which the propeller shaft is supported, by a ball bearing. The shaft itself carries a little worm wheel just in front of this bearing, which acts as a kind of turbine and throws the oil enter-



I.A.E. Graduates at Teddington.

THERE are many wonderful things to be seen at the National Physical Laboratory, Teddington, and last Saturday a large party of London Graduates of the Institution of Automobile Engineers spent a very interesting time there at the invitation of Dr. Glazebrook.

chauffeurs, who make it a rule to see the tool outfit supplied by the makers, will not be disappointed with what they are shown on the Berliet stand. This is one of the rare instances where they will see a kit that is, although not elaborate, of really good quality; the spanners in particular are substantial drop forgings with hardened and ground jaws, and form a pleasing contrast to the ginger-cake quality too often "thrown in." An excellent feature, too, is the book of instructions issued with every chassis. In plain and clear language, the reader is informed which parts of the car should be attended to, how often it should be done, and the way to do it. A number of illustrations help to make the information perfectly clear.

Last but by no means least, Messrs. Berliet Motors, of 40, Sackville Street, London, W., and their managing director, Mr. L. C. Rawlence, enjoy an enviable and well-deserved reputation for treating their clients with the courtesy and consideration that make for friendship in commercial dealings, and this reason alone would be sufficient to make the Berliet stand at Olympia a marked centre of attraction in the Show.



Special attention was paid to the Metallurgical Department, which is of such great importance to the Automobile Engineer, and lantern slides were shown illustrating the molecular composition of various metals magnified 300 diameters, though a magnification of a thousand diameters was also available.

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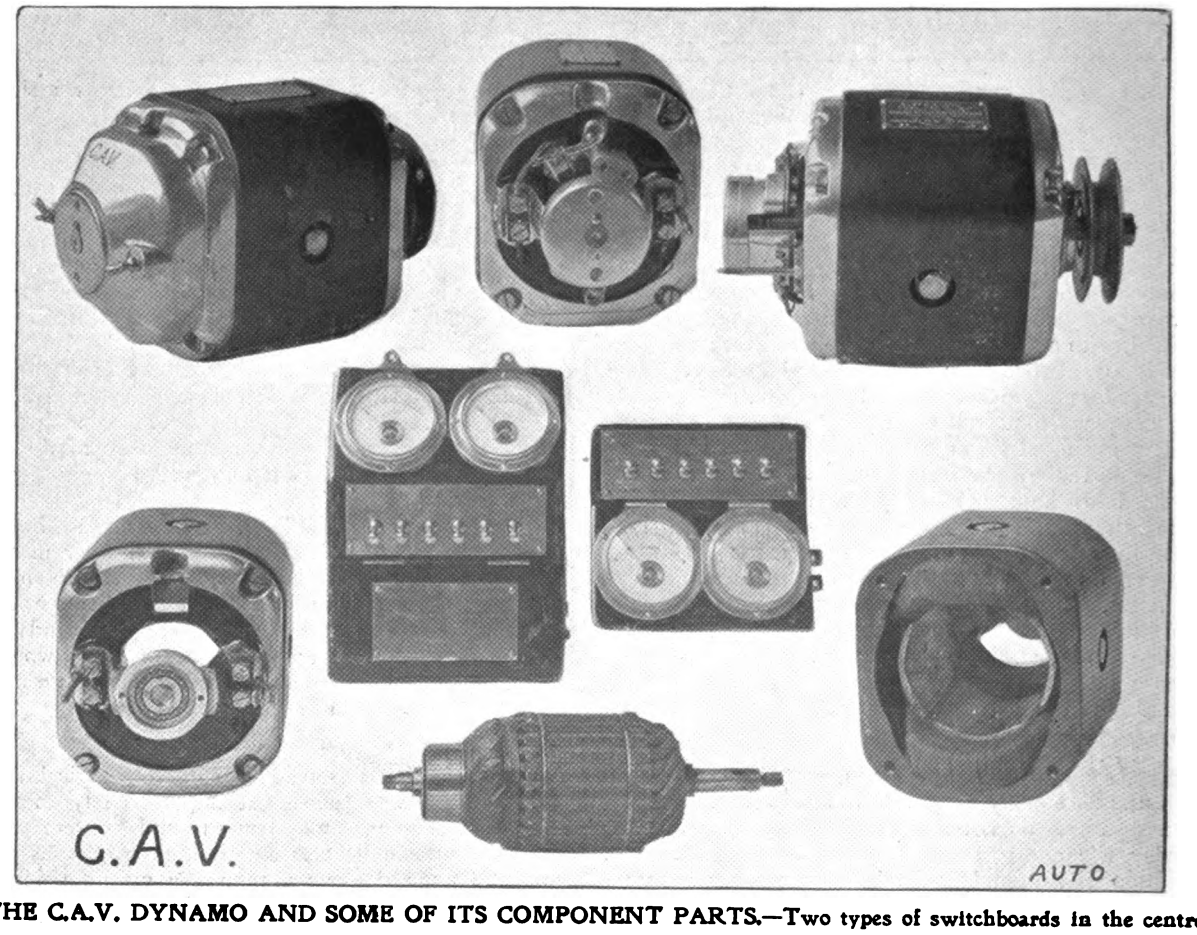
DYNAMO LIGHTING SETS.—IX.

THE C.A.V.

ALTHOUGH any of the standard sets of the Midgley-Vandervell lighting equipment provides enough matter to render a description quite a lengthy affair, if full technical details are to be given, there is one point over which a lot of space may be saved, for the simple reason that in this instance there is nothing to describe. We refer to the absence of the automatic cut-out usually found in some form or other in lighting installations, the lack of which in the C.A.V. set differentiates it at once from all other sets at present on the English market. In its place the makers fit a neat free-wheel device, which will be described in due course, their reason being that the occasional loss of current through the dynamo "motoring" for a few seconds is preferable to the small but perpetual loss caused by the coils of an electrical solenoid type of cut-out, or the complications of a mechanical one.

Of the five standard types, we should imagine that "E" and "F" are those most likely to interest the ordinary reader. These two have the following characteristics:—Type "E" is suitable for touring cars, has a maximum output of 90 watts at 12 volts, and a normal amperage of 6, while its charging speed is reached at about 500 r.p.m. Type "F" is the same size, and is designed for approximately the same output, but at about half the speed; that is to say, it is intended for connecting direct to the engine, and to run at the same speed as the latter. It also has a maximum output of 100 watts at 12 volts, starts charging at 290 r.p.m., but gives a normal current of 6½ amps. at all speeds above 800. The following general description will apply generally to either type:—

The armature is of the drum-wound type, running between four magnetic poles, two of which are wound and two otherwise. The ordinary main poles N1 and S1 have no winding at all, magnetism being excited in them by the reaction of the revolving armature. Bearing on the 48-part copper commutator are two brushes of carbon, sufficiently wide to short-circuit two windings of the armature, these said windings at the time of the circuit closing being out of the influence of the two main poles, but directly in the path of the magnetic field of the two subsidiary magnets N. and S. The effect of this system is to cross-magnetise the armature and to tend to set up a magnetic flux at right angles to the subsidiary poles. As the speed increases, the current generated in the armature, and which is passing from the brushes to the batteries and lamps, exercises a reaction directly opposed to that of the subsidiary poles, thus reducing the initial flux, and as these reactions increase with the speed, in harmony with the tendency to produce more current the actual output remains practically constant. In a purely electrical control of this type the average lay reader has to take a lot for granted, but with the help of the accompanying diagram we hope that the points of the system may be made clear to many. As before stated, no cut-out is used, a free-wheel clutch being interposed between the armature spindle and the



THE C.A.V. DYNAMO AND SOME OF ITS COMPONENT PARTS.—Two types of switchboards in the centre.

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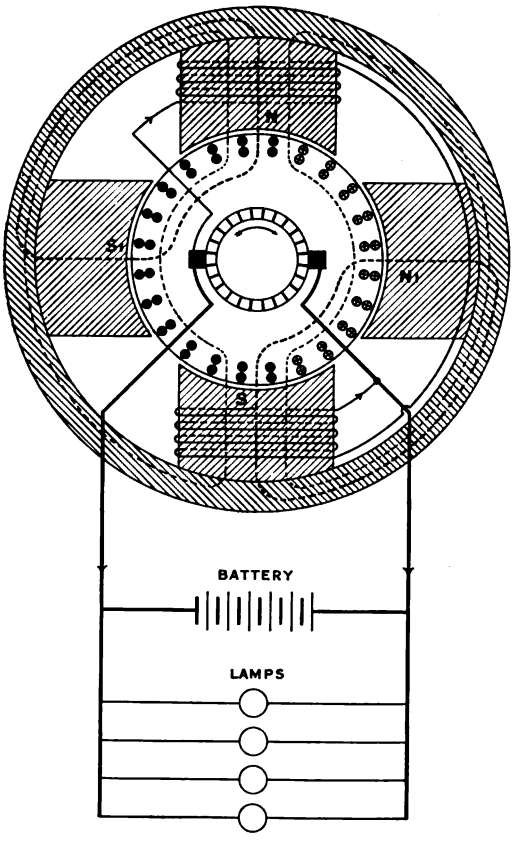


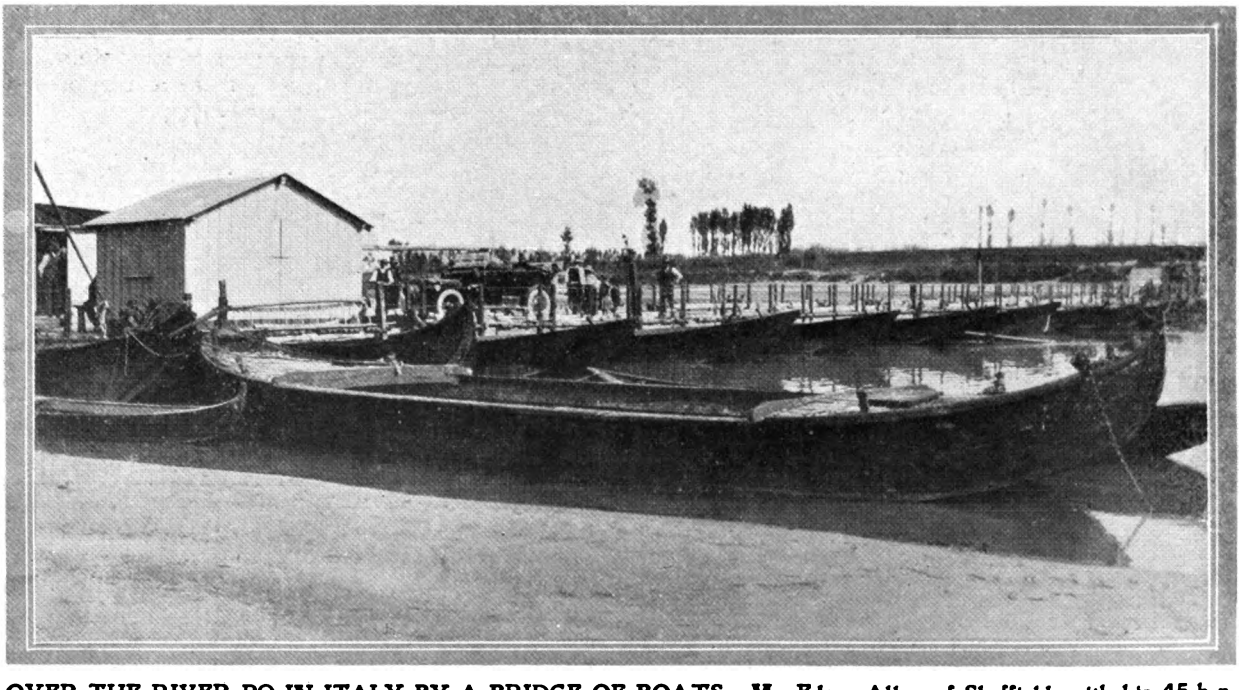
Diagram showing position of the fields and brushes in the C.A.V. dynamo, illustrative of the method of output control.

engine-driving member. In stopping the car the dynamo would naturally be cut off from the batteries by means of the switch provided for the purpose, but should the driver forget this the noise of the free-wheel will act as a positive reminder, and even if the circuit is not broken no ill effects beyond the discharging of the battery can accrue, for in running as a motor the dynamo has only the resistance of its own bearing and that of the free-wheel to overcome instead of trying to drive the engine of the car. The maximum current consumed in "motoring" is 1½ amps.

Very accessible is the C.A.V. switchboard, every contact being instantly brought to light without removing the board from the dash by simply raising the front. The switches are of the knife pattern, operated from the flush front by neat brass buttons similar to those employed in tumbler switches. Each headlight and side lamp, as well as the tail lamp, has its own particular switch, and there is another one—as intimated above—for interrupting the circuit between dynamo and batteries. A plug for an inspection lamp is also provided. Immediately under the hinged front just mentioned is mounted a fuse fitting into knife socket. The object of this member is to protect the dynamo field winding from damage should the engine be started up with the dynamo switch "on," but the batteries otherwise disconnected.

A neat chassis distribution board for the interior lighting is a feature that undeservedly might escape notice. It is designed so that the wiring for the interior lamps may all be connected to screw terminals, and in the event of the bodywork being removed, may simply be disconnected from the board and carried off on the body itself.

Specially made armoured cable is supplied by the C.A.V. firm to facilitate the safe wiring of their set, the use of this cable obviating the troublesome process of carrying the wires through copper tubes, &c. A three years' guarantee is sent out with each set from the factory, at Warple Way, Acton Vale, London, W.



OVER THE RIVER PO IN ITALY BY A BRIDGE OF BOATS.—Mr. Edgar Allen, of Sheffield, with his 45-h.p. Sheffield-Simplex car during a recent tour through Italy.

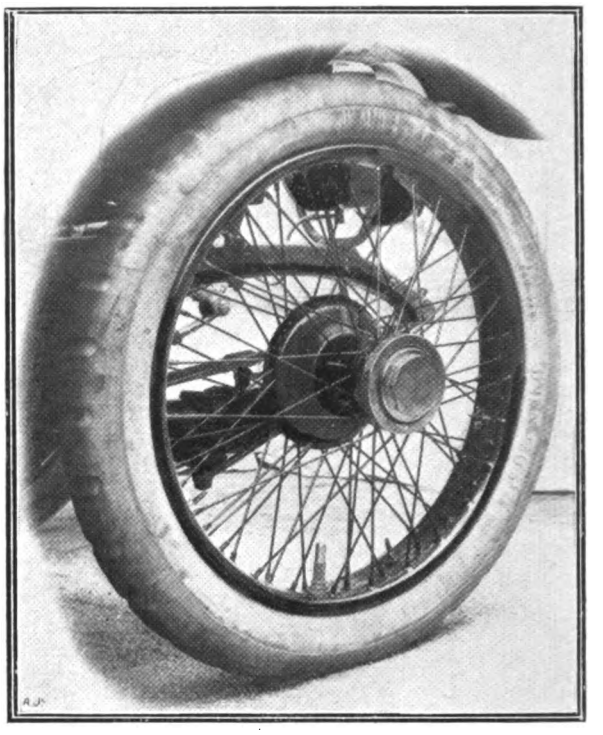
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R.-W. DETACHABLES.

NOWADAYS almost every first-class car and certainly every car de luxe has "R.-W. Detachables" in its specification as a standard feature. Other models are almost always specified in such a way as makes it clear that the Rudge-Whitworth detachable wheel can be fitted at an extra cost and one of our leading firms even makes a point of advertising its opinion that "they are worth it." Certainly anyone who has used the Rudge-Whitworth detachable wire wheel is not likely to be anxious to sacrifice the convenience that it affords for changing in a few minutes, the wheel and tyre complete, when the tyre has been damaged on the road.

The latest Rudge-Whitworth detachable wheel is incidentally one of those extraordinary developments towards simplicity that every now and again startles the engineering mind. It is very well known that the real problem of the detachable wheel is the method of fastening the attachment by some sort of locking device. Now locking devices, as a rule, mean several small pieces, which are apt to get out of order through the ingress of dust and wet, and although the designers of the R.-W. wheel rendered their original locking device so safe that it was practically impossible to make a mistake with it, yet its mere existence as a device involving separate parts still left room for improvement. The room, however, was somewhat of the theoretical order that is not ordinarily regarded as being within practical reach; imagine the surprise evoked, therefore, when a new type of Rudge-Whitworth detachable wheel appeared on the market without any detail locking mechanism at all. The nut itself *locks* the wheel in the latest design, and the way it does so is one of those extraordinarily ingenious applications of a simple principle that is never realised, even as a principle, until some brilliant brain shows the world that there is still something left to invent, and provides, incidentally, one of the prettiest problems that the amateur engineer, at Olympia, has been offered for his amusement this many a long day.

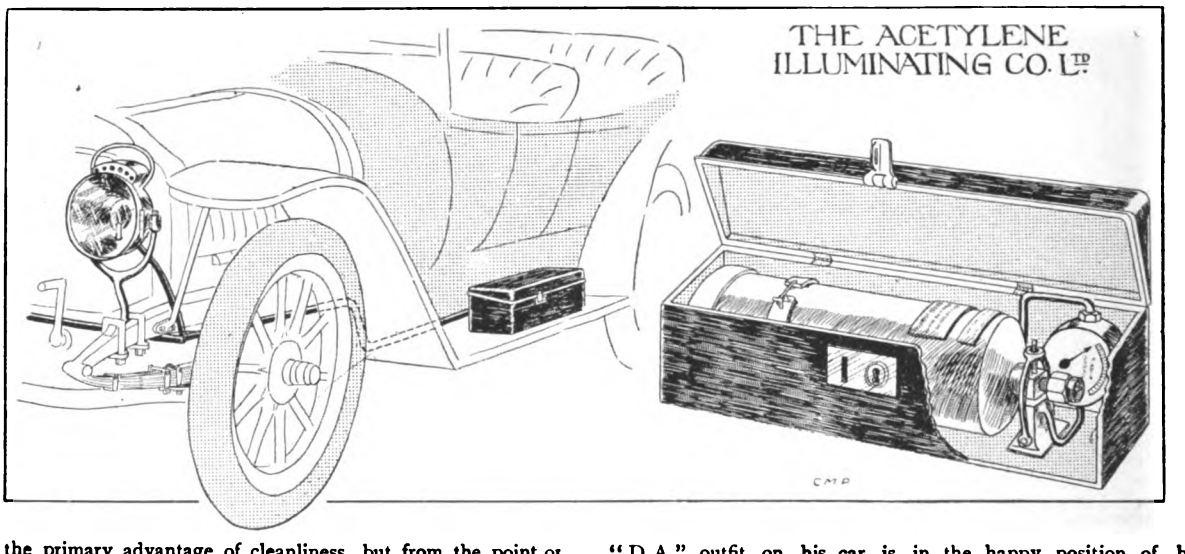
In the accompanying photograph is illustrated one of the latest type of Rudge-Whitworth detachable wheel with the self-locking nut.



"D.A." OUTFITS.

FOR the man who drives at night the problem of lighting is a matter of very vital importance. It pays to do the lighting of the car very thoroughly, and whilst the present car owner or the prospective purchaser of a new machine is about it, he might as well take the trouble to study the merits of various appliances with reasonable thoroughness. One of those that he must certainly take into consideration is the "D.A." outfit, for dissolved acetylene represents a method that is applicable to any car and without any alteration to existing arrangements. From the user's point of view it has the primary advantage of cleanliness, but from the point of view of the necessities of real night driving it has the great merit of providing clean gas at a steady pressure, which is a most important point. Flickering of the flame or water passing over into the pipe is the worst sort of inconvenience to the motorist who is endeavouring to make headway by the light of his lamps, and again it all comes to the fact that if one is going to do any considerable amount of driving at night one had better have the best possible equipment or none at all.

It will, of course, be quite understood that dissolved acetylene is thoroughly safe to use, because these things come under the law in this country, and it was not until it was absolutely proved that dissolving acetylene in the manner practised by the company supplying the "D.A." outfit was thoroughly safe that the process was permitted to be commercialised. "D.A." cylinders, ready charged with gas, can be exchanged for old cylinders all over the country, and it requires no particular experience to know when a cylinder is about to become exhausted. The motorist who has a "D.A." outfit on his car is in the happy position of being able to forget all about carbide and the messiness of cleaning out generators.



Also, he does not have to worry about seeing that his accumulators are kept properly charged by the engine; his responsibility is limited to the necessity of seeing that he does not run short of gas while the car is in use, and anybody with any reasonable intelligence and carefulness of habit should have no difficulty in removing that possibility from the sphere of likelihood.

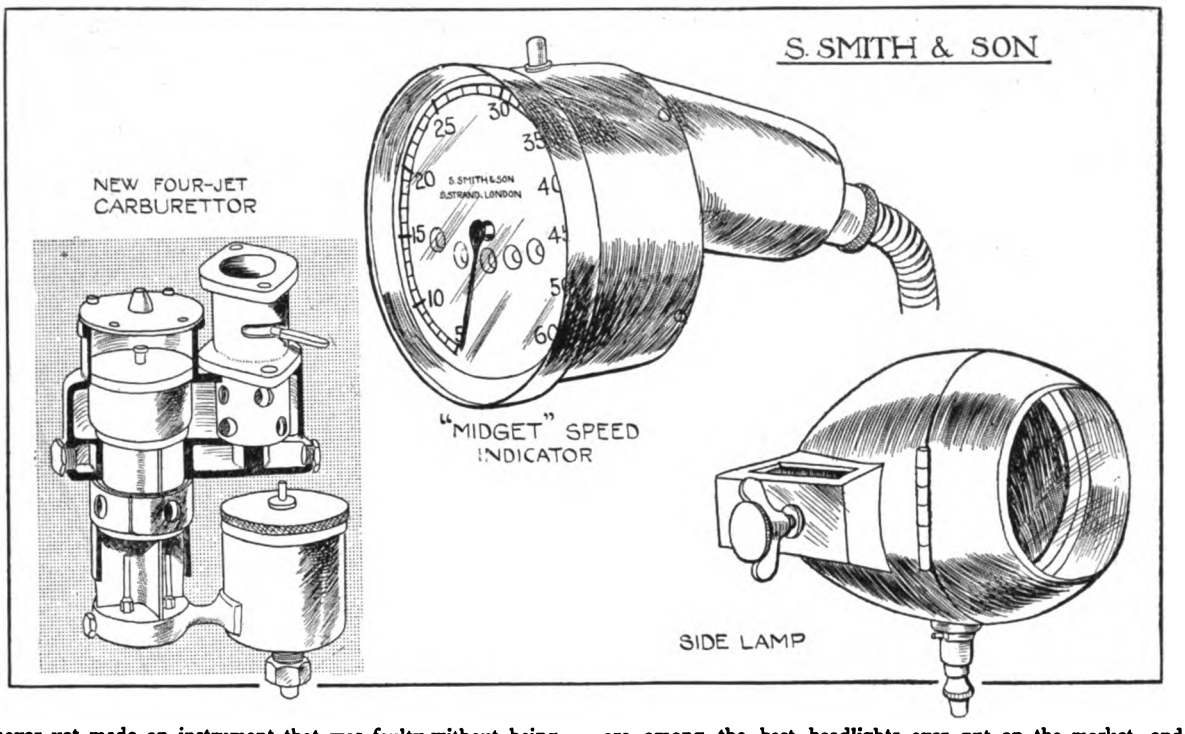
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SMITH'S SPEEDOMETERS.

IT is out of the question nowadays that a car should be regarded as complete without a speed indicator and whilst the purchaser is about it he may as well be prepared to buy the best he can find, or at any rate deal with a firm that has a reputation of making speed indicators that are above reproach. Messrs. S. Smith and Son, who have a reputation of this kind that it is impossible to deny and only fair to record, do their utmost to cater for the requirements of all classes. They make instruments that are expensive and they make instruments that are cheap, but, so far as we know, they have never yet made an instrument that was faulty without being fully prepared to accept the blame and change it at once, and it may be taken for granted that it is very seldom that this necessity arises.

The Smith speedometer has the merit of being a straightforward sort of instrument. It has a clear dial, a steady hand, and a well-made interior, than which it is not possible to ask more of this sort of device. Those who care for them can have combination instruments in which a clock and an aneroid or the like is combined with the speedometer, but they are considerably more expensive, of course, than the speed indicator alone, which can now be obtained at a very moderate figure.

It is not only as makers of speed indicators, however, that it is worth while visiting the exhibit of Messrs. S. Smith and Son at Olympia, because they are in a position to supply well nigh every sort of accessory that the motorist requires. Particularly do they stock an excellent selection of fittings for the interior of the car, as well as horns and lamps. Their Goldenlyte projectors are among the best headlights ever put on the market, and the motorist who has never driven behind a Goldenlyte has yet to appreciate the difference between what is meant by illumination and light. The rays reflected from the golden mirror of these lamps cast less shadow than the intensely white beam of the ordinary silver-backed lens, but they have the merit of showing objects on the road more nearly in their natural colours, with the result that the definition is improved rather than otherwise by the absence of some of the undesirable light.



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Motor 'Buses as Extraordinary Traffic.

WHILE other Borough Councils content themselves with passing resolutions on the motor 'bus question, Hornsey is evidently out for blood. At any rate, having to incur an expenditure of £3,000 for three roads at Muswell Hill, along which motor 'buses make 750 journeys a day, the Hornsey Council has obtained Counsel's opinion to the effect that there is justification for the suggestion that in the case in question, the motor 'bus traffic is "extraordinary traffic" within the meaning of the statute and that the Omnibus Company may be made liable in respect of it. The Council has decided to ask the Omnibus Company for a contribution towards the expense and in the event of it not being forthcoming, it is proposed to sue the 'Bus Company for the cost of repairs. In the meantime, inquiries are being made as to whether the London County Council and other Borough Councils would contribute towards the expenses of a test case.

Another Motor 'Bus Conference.

THIS time it is the representatives of the Borough Councils outside the London County area, but within the Metropolitan Police District and they met in solemn conclave at Ilford last week, at the invitation of the Ilford Urban District Council. In moving a resolution to the effect that the Local Government Board, the Board of Trade or some other Government authority should be empowered, after consultation with the local authorities, to limit and define the routes to be taken by such traffic, Mr. J. T. Cullis said that 800 motor 'buses ran through the High Street, Ilford, in twelve hours, the number having trebled since the beginning of July. Sir John Bethell, Liberal M.P. for Romford, suggested that if all the local authorities agreed upon a policy, there would be no great difficulty—in spite of the congested state of Parliamentary business—in bringing such pressure to bear upon the Government as to ensure the passing of a measure. This and other resolutions dealing with the sharing of the petrol tax and mud splashing were passed and an executive committee appointed.

NOTICE.
The AUTO. at OLYMPIA.
Stand No. 12.
Telephone : Regent 2313.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

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Messrs. P. L. H. DODSON, W. M. LETTS, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.

Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. A. Holmes, deputy-chairman; Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee: Messrs. Shaw, Tipper, Moores, Kahn, Tyler, Emmerson, Rawson, Adey, Wallis, and Darmaros.

The minutes of the previous meeting were read and confirmed.

Legal Department.

The case against member No. 47, summoned for having his extreme right lamp extinguished, heard on Monday last at Haywards Heath, resulted in a conviction, the penalty being a fine of 10*s.*, 7*s.* costs, and the licence to be endorsed. The solicitors report that, having had considerable experience at this Court, they have formed the opinion that cases are decided before they come into Court.

The committee expressed their regret at the result, it being a considerable period since any member had received an endorsement for a technical offence.

Application for legal aid was made by member No. 1036. The member being in benefit, the application was granted.

Arrangements for Show Week.

The committee decided that two members of the committee should be on duty at the AUTO. stall (No. 12) each evening, and during the day when possible.

Country members are requested to make themselves known to the committeeman in charge, and to note that the committee meeting on Monday next will be open to members who, after the usual business is disposed of, may bring forward any question for discussion. Country members also please note that if they cannot attend the Show, and have chauffeur friends who are coming to London, they may introduce them as visitors to the clubroom at Headquarters by giving them a letter of introduction. The secretary will be pleased to welcome any visitor on behalf of the members.

Members are requested to wear their Badges at the Show, and make themselves known to each other.

The secretary reported gift of books for the library from Mr. A. J. Wilson. The committee tendered to Mr. Wilson their thanks for his kindly interest in the Society.

Mr. Allison, Chairman of the Committee of Management, accepted on behalf of the Society an invite to attend the annual dinner of the Agents Section of the Society of Motor Manufacturers and Traders, Ltd.

Letters were read from Messrs. Todd and Wright, Ltd., Royal Automobile Club, Messrs. G. A. and H. Hillary, The National Health Commissioners and C. Shirley.

Review of Events.

The case of member No. 47 is another specimen of justice dealt out by the great unpaid, and shows the need for amending the Motor Car Act. It is time this double punishment should cease. Doubtless many members of the Bench do not appreciate the effects of endorsing a licence. If it had been a horse-drawn vehicle the fine and costs would have been the whole punishment, but in the case of a motor driver, under the existing laws, he is punished so long as he holds a licence, and his means of obtaining a livelihood is jeopardised when applying for a situation, maybe twenty years after he has paid the fine.

Some day chauffeurs will wake up, and by force of numbers demand the sweeping away of this injustice. The member is naturally indignant at the result of his summons. He declares that the lamp could only have been out a short time. From where he sits on the car the lamp cannot be seen. His headlight was burning, and he was crawling through a 10-mile limit when stopped. He intends taking the only course possible to get his own back, viz., never stop with any party for refreshments, or purchase anything in the neighbourhood of Haywards Heath if it is in his power to avoid doing so. Regarding the opinion expressed by the solicitor as to the magistrates of this particular Bench having made up their mind to convict before entering the Court, it is time one of the large owner societies gave them a leg up.

In July considerable correspondence took place between the Society and the National Health Commissioners as to the status of chauffeurs when abroad. This correspondence was published in the official notes. The Commissioners have kindly given, in a letter dated October 31st, the following additional information:—

"The General Secretary, National Society of Chauffeurs.

"Sir,—With reference to your letter of June 27th, and to the Commissioners' reply of July 17th, I am directed by the National Health Insurance Commission (England) to inform you that chauffeurs in State Insurance leaving the United Kingdom otherwise than on tours or for other than temporary residence abroad, and consequently absent from the United Kingdom for more than twelve months will, in ordinary circumstances lapse from insurance, and will no longer be entitled to pay contributions. They will, however, in virtue of their previous contributions be able on their return to re-enter insurance on favourable terms.

"I am, Sir,

"Your obedient servant,

"JOHN ANDERSON."

Accepted for Membership.

Walter E. Herbert, London, S.W.	Arthur E. Worthington, Cobham
Robert Rolfe, Chislehurst	Robert Jones, London, S.W.
John Perry, London, S.E.	Frederick G. Styles, London, S.W.
Albert E. Bird, Woking	James W. Austin, London, S.W.
E. G. Bramble, London, S.W.	George Shiel, London, N.W.
F. McDonald, London, S.W.	W. E. Burridge, London, S.E.
W. F. Lang, East Molesey	Reginald Sebright, Bath
R. H. Went, Wolverhampton	

Applications for Membership.

Francis Morgan, Monmouth	Percy J. Harriman, Leicester
F. W. Rogers, Leominster	Alfred E. Wicks, London, S.W.
Anton Hirsch, Penrith	Alfred Maxlow, London, S.W.
William J. Cabena, London, W.	George W. Cady, London, S.W.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

97.

A SQUEAK FROM THE SPEEDOMETER DRIVE.—Some time ago, while driving a Mercedes, I had a most irritating squeak on the car, which it took me more than two weeks to locate, and when I finally did find it, it was quite by accident. I had been continuously lubricating every place on the car which could possibly be the cause of the noise, and I had been wasting a lot of time, oil and grease, in liberally treating shackle-bolts, steering-pins, springs, valve-guides, rockers, and every other place I could think of; but it was all to no purpose. The squeak only occurred when the car was running, and from this I concluded that it was not in the engine; but in spite of that it sounded exactly as if it came from under the bonnet. In time it was getting so bad that I thought people were listening to it every time a person looked round when I passed with my car.

As I said before, I found it out quite by accident, and this is the way it happened. One morning I was ordered to pick up a passenger about thirty miles from home, and started in good time. I had not done more than two miles when I noticed the speedometer-needle jumping from about 15 to 40 m.p.h., and then fall back on to zero; it did not stop there very long, but started again indicating for a short time, only to repeat its jumps. I got down, and when looking at the drive I found that the little driven gear-wheel was rather badly scored, so I eased it back a little, and thinking that this had put matters right, I started off again. But although I had meshed the driving and the driven gear-wheel properly and the drive seemed to be quite perfect, the needle still continued to jump all over the dial. As time was getting short, I could not worry any more about the speedometer, and just stopped to disconnect the drive altogether; I could go into the matter after my return home. Curious to say, after I had started again, I noticed to my agreeable surprise that the squeak had disappeared altogether. Having arrived home, the first thing I did was to take down the speedometer-drive, and when attempting to remove the cable I found that it had very nearly seized up in the bearing at the driving end. No harm had been done so far, and copious lubrication put matters straight again.

Like a number of chauffeurs, who have reported their experiences in "squeak hunting" in your chauffeurs' page, I have never heard of a squeak in this particular place, and in writing this letter to you I think it might be a useful hint to others who are puzzled over such an irritating thing. It also shows that it is wise now and then to lubricate the driving-shaft of the speedometer, and the best way of doing this I found is to unscrew the housing of the flexible shaft at the speedometer end, and to force some lubricant down by means of a syringe. Very thick oil, like Vacuum B, when made warm will run right down the shaft, and be distributed fairly evenly by the revolutions of the cable. When cold it will not run out of the bearings on account of its consistency, because the speedometer drives never generates sufficient heat to melt thick oil like this.—*N.S.C.* 1,081.

98.

BRIGHT METAL PARTS IN FOGGY WEATHER.—In answer to R. Thomas's letter, No. 96, in your page of "Chauffeurs' Experiences," last week, the following might interest him:—

After the brass has been cleaned and is perfectly bright take a piece of clean waste and pour a little paraffin on it. If you rub the brasswork gently with the waste you will find that a day's rain or fog will neither stain nor tarnish the metal. An even better result is obtained when a little lubricating oil is mixed with the paraffin before it is poured over the waste.

After washing the car in the evening, you can wipe the brass dry in the ordinary way, and a brisk rub with a dry, soft cloth will revive the polish. I grant that it is not quite as bright as on a fine summer's day, but in any case there will not be any stains or tarnish.

Of course, when the paraffin is applied to the brass the metal-work does not look quite as smart as it does usually but as in foggy weather the polish on the brass lasts a few minutes only, I prefer to have a fairly good-looking car all day long to a smart one for a couple of minutes and a shabby appearance for the rest of the day.—*N.S.C., Holmwood.*

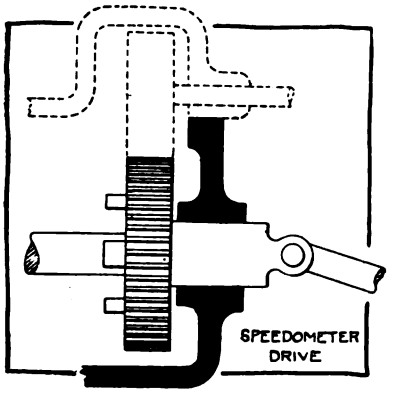
In reply to letter No. 96 in our last week's issue, we have received from Messrs. Herbert Terry and Sons, the well-known spring makers of Redditch, a bottle of "Glonze," a new preparation which they have just placed on the market. It is described as a colourless lacquer for wood and metal for preventing tarnishing and discolouration of highly-polished brass, copper, plated articles, and coachwork. Applied to highly-polished metal articles it is said to prevent their being affected by the damp or fog, causing the metal-work to retain its brilliancy for long periods. According to the directions printed on the label its application is very simple indeed, and if the instructions are carried out the preparation should prove a veritable boon to many chauffeurs.

We have forwarded the sample bottle to our correspondent, and shall refer to it again when we hear from him how "Glonze" has turned out to work in practice.—EDITOR.

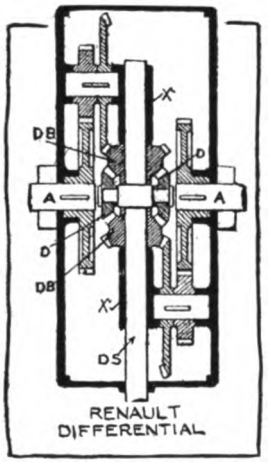
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FOREIGN MISCELLANY.

To those who are willing to sacrifice strict accuracy in the reading of their speedometer for a neat and silent drive, the suggestion of a writer in *Omnia* should appeal; he proposes to take the drive by means of a gear wheel from one of the gear wheels in the gear-box, as shown in the reproduced sketch. This undoubtedly enables the speedometer gears to run under the most favourable conditions, but unfortunately causes the instrument to read too high due to the slip of the back wheels.



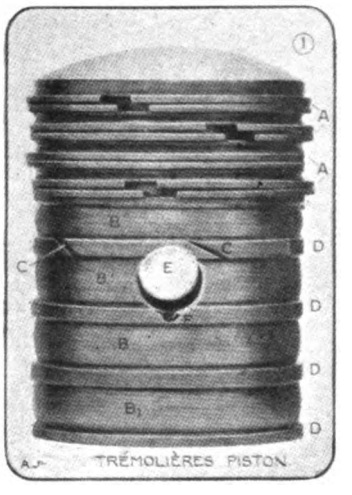
A new differential-gear has recently been patented by the makers of the Renault car, and a diagrammatic sketch of the arrangement is reproduced herewith. The driving shaft, DS, has keyed to it a collar which carries, by means of pins, the differential pinions, D; the latter mesh with double-faced pinions, DB, which are free to rotate on the shaft, DS. The second set of teeth of these pinions engage with crown wheels, from where the motion is transmitted to the axle-shafts, A, through the spur and pinion wheels shown in the sketch. The driving shaft, DS, and the crown wheels, are of course, supported by bearings, X^1, which are fixed to the differential casing. The object of this somewhat elaborate design is to eliminate end-thrust on the axle shafts by receiving it there where it can more adequately be provided for.—*Automobil Welt.*

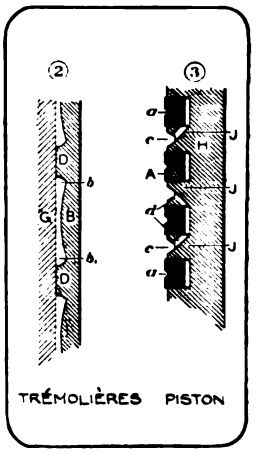


Fires and clay.—"Burning the earth," a phrase significant of breathless and death-defying speeds, and formerly much used by drivers of small and imperfect cars as a sort of verbal setting for descriptions of their hair-breadth escapes from destruction, has acquired a new and literal meaning in certain sections of the South, where bog clays, otherwise impossible as road material, are converted into passable highway surfaces by a rough calcination process. Burned clay road, while still but little known elsewhere, seems to have partially solved the traditional transportation problem of the Mississippi Valley. Merely by stacking wood or coal on the roughly furrowed roadbed, banking it properly with peat-like "gumbo" and burning out all vegetable constituents by a process of slow combustion, the character of the clay is so altered that it can be rolled into a fairly hard mass that proves to be remarkably free from mud, even in extremely wet weather.

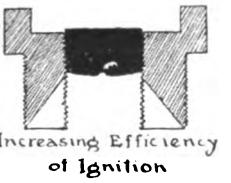
In a country far from rich in suitable road-building materials and not sufficiently wealthy to afford to construct its highways from imported sand and gravel, the process, which is by no means expensive, is thought to promise much for the future. Its suggestive value, however, rests in its possible applicability to other materials in other localities. If such a process can be employed with one form of clay, why not with another? May it not be just possible that the successful highway of the future may be composed of a cemented structure, formed of indigenous materials, bonded, perhaps, with some bituminous material, and fired on the spot?—*Automobile Topics.*

The Trémolières piston is intended to improve the lubrication of this part of the motor while at the same time decreasing the liability to smoke. At the upper end are four piston rings, each of which has an oil groove cut in it to assist its lubrication. Underneath each piston ring an oil scraper groove is cut from whence the oil can flow to the back of the rings. Below the piston rings are a number of wide grooves, the cross-section of which is clearly seen in Fig. 2. These are all in communication with each other by means of slots (*see* Fig. 1), except the bottom one which is entirely isolated. The idea of this design is that when the pressure of the oil in the upper grooves rises it will be able to escape into the lower ones instead of being forced upwards into the combustion chamber. In these days of light reciprocating parts it seems hardly the sort of piston one would like to adopt. —*Omnia.*





To obtain a more rapid ignition of the mixture in the cylinder of an engine, a correspondent in *Automobile Welt* recommends that the valve-caps be bored out conically, as shown in the accompanying sketch. This may be of some slight assistance, but it should not be forgotten that the compression is thereby lowered at the same time; in the high efficiency engines of to-day this latter result might be an improvement, however, rather than the opposite. A long reach plug would seem to be a simpler way out of the difficulty.



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For Garages Open Sundays, see "Auto." Guide every week.

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MOTOR CYCLE MATTERS.

By "MULTI."

An Echo of the Manœuvres.

I AM pleased to see that the authorities most concerned have given recognition to the valuable services rendered by motor cyclists during the recent manœuvres in East Anglia. In a letter from the War Office to the A.C.U., the Army Council express "their appreciation of the efficient manner in which the motor cyclists provided by your Union performed the duties which were allotted to them." This looks as though the total indifference—almost contempt—with which at one time the Military Authorities regarded the motor cycle is at last giving place to a more reasonable attitude. I happen to know personally that some of the feats accomplished in the matter of quick despatch bearing were quite eye-openers to many of the "chiefs," indeed they also astonished not a few of those who were even, if anything, biassed in favour of the utility of this class of machine. Granted that the general nature of the country in which the mimic war took place was distinctly favourable to a complete demonstration of their speed and handiness, yet the same conditions are not peculiar to any one country, at least in Western Europe, and what these machines were capable of doing in the East Anglian war zone they could do with almost as much certainty and celerity wherever they are at all *likely* to be needed.

Twins *v.* Singles.

I do not propose to venture on a lengthy discourse anent the advantages possessed by either type as compared with the other, for so much has already been written to this purpose that further remarks can scarcely fail to be but repetition, and would be superfluous. I do wish to allude to just one small point, however, which appears to have led to a little confusion on the part of several of my confrères with whom I have spoken on the matter. It has generally been conceded that, capacity for capacity, the single cylinder machine has an advantage over the twin by reason of its lesser internal friction. This is true, but arguing from this premiss it has often been assumed that a twin of 1,000 cc. capacity cannot develop twice the horse-power possible from a 500 cc. single.

Now this assumption is quite erroneous. If a 500 cc. single is potentially capable of developing, say, 6 b.h.p., then an equally well designed twin of 1,000 cc. should be able to develop 12 b.h.p. plus an amount representing the difference between twice the horse-power expended in overcoming internal friction, in the case of the single, and the actual horse-power expended in a like manner by the twin. A very little consideration should suffice to show that the friction in the twin is not, or should not be, double that in the single; for instance, the resistance to the motion of the fly-wheels caused by the oil bath is very little, if any, greater; the number of bearings is not doubled, there being precisely the same number of main bearings, *i.e.*, two. Nor is there of necessity twice the number of moving parts in the timing gear and there is but one magneto to drive, and that at the same speed as on the single.

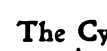
In the aggregate these savings should account for a not inconsiderable gain in the matter of horse-power, in other words it is only reasonable to expect the twin-cylinder engine to be rather more efficient, when regarded from this standpoint, than the single.

An Elusive Fault.

No matter how experienced a motor cyclist may happen to be, at some time or other some peculiar symptom of derangement is bound to manifest itself, which defies, for the time being, any attempt at a correct diagnosis of the fault. Such an occasion recently happened to me, and it may be well worth while setting forth the facts of the case for the benefit of my brothers of the wheel in order that they may take steps to prevent or, failing this, to readily locate any trouble of a similar nature.

It happens that my duties frequently necessitate running about town, for which purpose I have been in the habit of using a light-weight machine with handle bar-controlled clutch—in which latter member, by the way, I am a firm believer for this sort of work. On the occasion of which I speak, the roads were particularly heavy and greasy with that clammy type of road mixture that adheres tenaciously to the tyres and is apt to smother the machine from hub to handle-bar, no matter how good the mudguarding may be. In between breaks in the traffic it seemed to me that the machine was not answering the throttle and jumping into her stride so readily as was proper and usual, though the firing was regular and the sound of the exhaust quite normal. I gave a fresh charge of oil for precaution's sake, but the symptoms rapidly grew worse. Not caring about investigating matters in the full light of Metropolitan publicity, I selected a likely looking back street of comparatively quiet appearance, and proceeded to mentally and visually overhaul the power unit. Neither process, however, revealed any fault; the ignition seemed perfect, both as regards timing and intensity of spark, valves were functioning correctly, carburettor ditto. Engine and clutch were free, likewise transmission, also the machine as a whole could be wheeled without further perceptible effort than usual. Which way to turn for inspiration I confess I was at a loss to know. However, judging that a few minutes' quiet smoke would, perhaps, help me in my dilemma, I filled and lighted the pipe, and sat myself on the kerb to think matters over. Fortunately for me, I happened to choose a spot somewhat in advance of the front wheel, and glancing in that direction I noticed that a considerable amount of the aforementioned mud was clinging to the underside of the front mudguard, but had previously been hidden from view by the side-flaps. Then suddenly came enlightenment; for like a flash it came to me that once my weight was on the saddle, the spring-forks were compressed sufficiently to cause the caking of mud to form a particularly effective brake.

Needless to say, a few minutes' work with a long screwdriver remedied matters, and another lesson had been added to my stock of experience.



The Cyclecar Club.

AT a meeting attended by about sixty people interested in cyclecars, held at the Holborn Restaurant, on Wednesday of last week, it was decided to proceed with the formation of the Cyclecar Club. The Rev. E. P. Greenhill was in the Chair, and Mr. Frank Thomas was elected Hon. Secretary, and a provisional committee was formed to draw up the preliminary rules and to submit them to another meeting, which will be held probably during the Olympia Cycle Show.

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CORRESPONDENCE.

Electric Lighting Tests.

SIR,—The interesting letters which appeared in your paper concerning official tests for electric generators and lighting sets complete should, we hope, result in such tests as Mr. Edge suggested. We write to say that the proposals have our most hearty concurrence, and we will not fail to enter our "Magician" Lighting Set whenever official tests are undertaken, as a result of the present correspondence. We do not agree with Mr. Jarrott in his view that Mr. Edge's suggestions do not cover the ground entirely. To our mind, the tests suggested by him are exhaustive and complete and could not be improved upon. To add to them would only confuse the issues.

The question at issue is not the reliability of the sets but their light-giving power. Let us deal with that issue first: it will be quite easy after that to devise some reliability test. We venture to think that most electric lighting sets now on the market are fairly reliable, but we entirely agree with Mr. Edge that most of them are inadequate, that is to say, they do not give enough light. You may rightly say that it is small wonder we hail these tests with pleasure, as it is fairly well known that the "Magician" dynamo is by far the most efficient and powerful at present on the market, it being efficient at low speeds as well as at high speeds.

UNITED MOTOR INDUSTRIES, LTD.
H. HILDERSLEY, Secretary.

45-46, Poland Street, W.

The Unofficial Tyre Trial.

SIR,—I enclose copy of correspondence with the Royal Automobile Club, which I think is of interest, and I trust you will be able to find space to reproduce it.

Challenge Rubber Mills, W. YARWORTH JONES.
November 1st, 1912.

[Enclosures.]

Royal Automobile Club,
Pall Mall, S.W.
October 30th, 1912.

Messrs. The Challenge Rubber Mills, Eagle Wharf Road, City Road, N.

Re Victor-Dunlop-Michelin-Continental Tyre Trial.

Dear Sirs,—In my letter of August 1st, I informed you that the Club regarded the above trial as an unofficial trial, since it was not being held under the observation of the Club, and that it was an infringement of the Competition Rules of the Club.

Such a trial would render Victor tyres liable to be disqualified in all competitions (including Brooklands) held under the Competition Rules of the Club.

The trial in question appears to have been held, and I am directed to inform you that the question as to whether disqualification should take place will be considered by the Club at a meeting specially convened for this purpose, to be held at the Club on Tuesday next, November 5th, at 5.30 o'clock, and you are invited to place before the meeting any explanation that you may think fit to make, or should you care to do so, to send a representative to attend the meeting, to show cause why the sentence of disqualification should not be put into effect.

I beg to remain,
Yours faithfully,
(Signed) J. W. ORDE, Secretary.

J. W. Orde, Esq., Secretary, The Royal Automobile Club.

Re Victor-Dunlop-Michelin Continental Tyre Trial.

Sir,—We are in receipt of your registered letter of the 30th ult., and note with interest that a meeting of the Club has been specially convened to consider whether Victor tyres are to be disqualified in all competitions, including Brooklands, held under the Competition Rules of the Club.

May I venture to remind you of a letter which you sent us dated August 1st. From that letter I quote the following:—

"I am directed to inform you that the Club and the Society of Motor Manufacturers and Traders regard the above trial as an unofficial trial—since it is not being held under the observation of the Club. . . . . "

"I am to state that, if the above rule is infringed, Victor tyres will be disqualified in all competitions (including Brooklands) at home and abroad, and cannot be exhibited at the Olympia Exhibition, nor would any car fitted with such a tyre be admitted to the Olympia Exhibition."

That letter is, you will admit, very definite. If the trial was proceeded with, except under the observation of the Club, it was, *ipso facto*, disqualified not only from all competitions, including Brooklands, held under the Competition Rules of the Club, but was specifically barred from exhibition at Olympia. We note with some interest that no reference is made in your registered letter of the 30th ult. to the question of the eligibility of Victor tyres for exhibition at Olympia, although your letter of August 1st, made it abundantly clear that Victor tyres would be banned both from competitions *and* exhibition.

I would remind you that, as you were fully aware, the tyre trial, control of which you first accepted, drew up rules for, but finally declined to conduct, had actually started two weeks before your letter of August 1st was written. We concluded therefore, having no alternative, that your rule governing unofficial trials being infringed, the tyres were irrevocably disqualified. Your letter of October 30th, suggests that your letter of August 1st was hastily written and that you are now prepared to have the case argued in order that you might come to a decision as to whether, in fact, your rule has been infringed. I suggest with great respect that it is not consistent with elementary justice nor with any sense of dignity, definitely to pronounce judgment first and consider the evidence afterwards. If, as now appears, you are prepared to reconsider the matter you will I am sure permit me to emphasize the fact that it is now too late for this firm to make any arrangements for the exhibition of their tyres at Olympia during the show, and that if you subsequently decide that this trial was not an infringement of your rule, you have probably, and certainly quite without warrant, imposed a considerable penalty upon the products of this firm.

I shall certainly be pleased personally to attend the meeting you are convening and should be glad if your Committee would then be ready with an answer to the direct question I shall put to it as to its right seriously to injure or attempt to injure the business of this Company because we carry out a test which the Club itself refused to conduct.

Your faithfully,
(Signed) W. YARWORTH JONES, Managing Director,
Challenge Rubber Mills.

SIR,—Adverting to the letters which have appeared in your columns by "William George" and which Lord Tenterden so correctly designated in his letter published in your last issue as "offensive" and "impertinent," it may be interesting to your readers to know that a letter I caused to be posted to this gentleman with his published name and address has been returned undelivered by the Post Office as "unknown."

Perhaps William George will explain.

Clapham Park, S.W. J. BICKFORD.

A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Olympia.—Members are informed that the Association has a Stand at the Olympia Motor Exhibition. The Stand is near the Addison Road Entrance—No. 3. To meet the convenience of members visiting the Show, arrangements have been made to receive at the Stand correspondence or messages which will be handed to members on production of their membership cards. A special staff will always be in attendance to deal with members' enquiries appertaining to the various departments of the Association.

Motor Cycling Club Concert.—Invitation to Members of the A.A. and M.U.—The Committee of the Motor Cycling Club have extended a cordial invitation to A.A. and M.U. members (whether motor cyclists or car owners) to be present at their Smoking Concert which will be held on Tuesday, November 19th at 7.30 p.m. in the Crown Room, Holborn Restaurant. Mr. Charles Jarrott is taking the chair, and it is hoped that members will avail themselves of the Motor Cycling Club's kind invitation.

Dangerous Corners.—In response to the request of several local members, also the local Motor Club, the Association communicated with the East Riding of Yorkshire authorities with regard to a very dangerous corner at Staxton, between Malton and Scarborough, which has been the scene of many accidents. To enable the Highways and Bridges Committee to arrive at the importance of this matter, the Association supplied records showing the motor traffic passing this point, with the satisfactory result that the County Council have now requested the Sherburn Rural District Council to consider the desirability of taking immediate steps to improve this corner, towards which improvement the County Council has notified its willingness to contribute £50.

Touring Department.—The Association learns that the Col du Mont Cenis is now closed by a downfall of snow.

Refuse on Roads.—A motor cyclist member recently suffered injuries through being thrown off his machine while rounding a corner where the road was strewn with refuse dropped from the farmers' carts. As it is an offence under the Highway, Act 1835, for any matter to be laid on the highway to the injury or personal danger of road users, the Association is taking this matter up strongly with the authorities responsible for the road on which the accident took place.

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RACES, RECORDS, AND TRIALS.

New Vauxhall Records at Brooklands.

ON Monday Mr. A. J. Hancock, on his 20·1-h.p. Vauxhall, succeeded in improving on several of Brooklands class records. In Class E, he reduced the time for the flying mile to 36·14 secs. (99·65 m.p.h.), ten laps from a standing start were covered in 17 mins. 14·11 secs. (96·32 m.p.h.) and ·50 miles from a standing start in 30 mins. 52·74 secs. (97·15 m.p.h.). This last mentioned is a new world's record. The speeds of the previous holder, the 12-16-h.p. Sunbeam car, were 99·45, 93·75 and 92·96 m.p.h. respectively. Mr. Hancock also improved on the records in the 21 R.A.C. rating class already held by Vauxhalls, his speed for the half mile being 101·24 m.p.h., and for the kilom. 100·54 m.p.h.

Cycle Car Records at Brooklands.

ALTHOUGH the awful weather prevented Messrs. Peyrecave and MacArthur from continuing their ride for 12 hours at Brooklands on the 30th ult., they succeeded in beating 11 cycle car records on their Duo-car. In spite of the heavy rain which fell during the day, the little car, which was a standard model fitted with a 8-h.p. J.A.P. engine, kept up an average speed of a little over 38 miles an hour, and the only mechanical stop was one of four minutes through a sparking plug. During the first four hours and the last two Mr. L. F. Peyrecave was at the wheel, while during the fifth, sixth and seventh hours, Mr. J. C. MacArthur was driving. The fastest speed was attained in the sixth hour when 40¾ miles were covered. The last two hours were run in the dark, and part of the time with three up, one holding a lamp. Stelastic tyres were used, standard Lukin carburettor, Pratt's petrol, and Price's lubricating oil. The following are the details of the records.

Hours.	miles.	yards.
1	35	1,120
2	74	1,200
*3	114	520
*4	152	8
*5	190	50
*6	230	1,576
*7	267	245
*8	300	1,170
*9	333	824

Miles.	hours.	mins.	secs.
*150 ...	3	56	44
*200 ...	5	14	47⅘
*250 ...	6	30	43
*300 ...	7	58	40⅘

* New records for cycle cars.

An Isle of Man Race Next Year.

ALTHOUGH no official announcement has yet been issued by the R.A.C., advices received from the Isle of Man indicate that it is practically certain that there will be at least one car race there next year. It will then be five years since the last car race, the famous Four-inch race, was held there, although the contests for the Motor Cycle Tourist Trophy have been held annually.

The Grand Prix Fails to Attract.

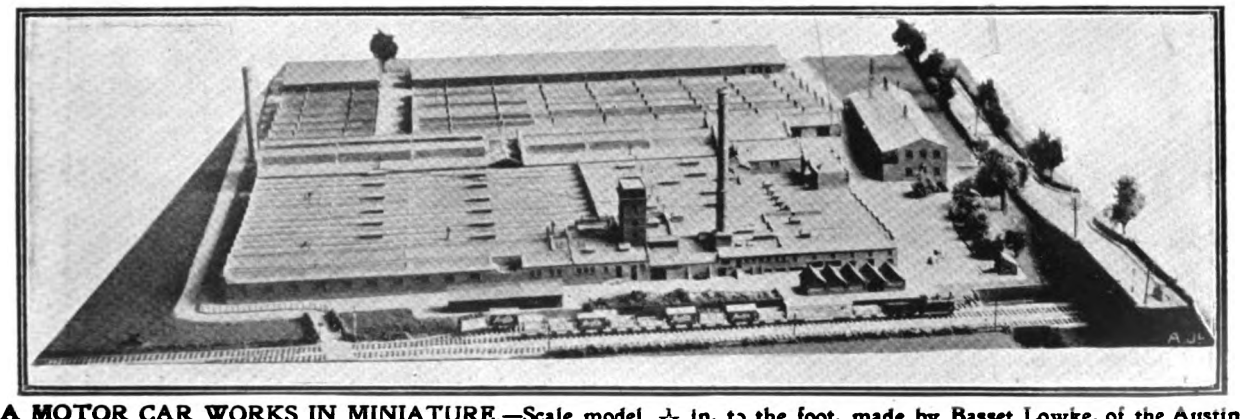
THE revival of interest in road racing, which appeared to follow the success of the Grand Prix race this year, was more apparent than real, judging from the fact that the entries for next year's Grand Prix at the closing date, October 31st, only numbered 16. It will be remembered that the A.C.F. stipulated that there should be a minimum of forty entries to ensure the race being held, so presumably there will be no Grand Prix race next year, at any rate under the original rules which called for a limited fuel consumption. The entries included three each Sunbeams, Peugeot, Itala, and Schneider, two Delage and one each Mathis and Opel.

The Three Litre Car Race Again.

ON the same day that the announcement was made that the Grand Prix had failed to fill, the regulations for the *Coupe de l'Auto* race for light cars, which is fixed for June 29th, were published. It will again be open to cars fitted with engines not exceeding three litres capacity, but several alterations have been made in the rules, notably one prohibiting the explosive mixture being fed to the cylinder at a pressure exceeding the normal atmospheric pressure of 760 mm. mercury. Instead of a minimum weight, there will be a *maximum* weight of 900 kilograms which must include the car with two-seated body but without water, oil, petrol, tools, or spare parts. Each car must have a two-seated body and be fitted with a reverse gear driven by the motor, while the exhaust must be released through a horizontal pipe extending beyond the back axle. Each car must carry two men, and if their combined weight is less than 140 kilogs., it may be made up with ballast. The distance of the race will be about 800 kiloms. Entries, which are limited to four of each make, close at ordinary fees on December 31st. Fees are, 1,000 francs for one 1,800 francs for two, 2,500 francs for three and 3,000 francs for four vehicles.

Tests with Stelastic Tyres.

AN official certificate has now been issued by the R.A.C. covering the tests which were made from December 9th to October 15th with a set of four Stelastic Pneumatic



A MOTOR CAR WORKS IN MINIATURE.—Scale model, ⅛ in. to the foot, made by Basset Lowke, of the Austin factory at Northbridge, near Birmingham.

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Tyres entered by the Stelastic and General Syndicate, Ltd., 11, Queen Victoria Street, London, E.C. The carcase of these tyres, which are British built, is of the usual form, but the tread is formed of rubber, in which are embedded interlaced upstanding spirals of steel wire. The tyres, size 880 mm. by 120 mm., were fitted to a 23·8-h.p. six-cyl. Knight-engined Daimler car.

The record of the trial is as follows :—

The weight of the car was 3,405 lbs. (front axle, 1,616 lbs. ; back axle, 1,789 lbs.). The average load carried was 531½ lbs. (of which 237 lbs. was dead weight), making the average running weight 3,936½ lbs.

The weather for the greater part of the trial was fine.

The trial was held upon the Club's six standard routes, the average speed throughout the trial (running time only) being 19·6 miles per hour.

The total distance run by the tyres was 5002·3 miles.

All four tyres were kept inflated to a pressure of 80 lb. per square inch. Detachable wire wheels were used. The wheels, with their tyres undisturbed, were changed after 3,500 miles had been run, those upon the back being put upon the front and *vice versa*.

Throughout the trial no puncture occurred, and the covers were not disturbed upon the wheels.

Conditions after Trial.—The covers were removed after trial and examined. In every case the condition of the casings was found to be very good and without signs of uneven strain. Tyres Nos. 110266 and 110358 which had developed lumps at the sides of the treads about half way through the trial, were found to have the treads loose in places. Tyre No. 110350 was found to have developed similar lumps. These lumps appeared to be caused by the tread becoming slightly loose upon the canvas casing, causing a collection of rubber dust to collect beneath the surface.

The treads of the tyres were free from cuts. Except in the case of tyre No. 110304, which had a small hole through the casing, there were no signs of perforations through the covers.

The following are the particulars of the tyres :—

No.	Position at Start.	Weight.	Thickness of Tread. Before Trial.	Thickness of Tread. After Trial.	80 lbs. per sq. in. after 228 Miles. Circumference inches.	80 lbs. per sq. in. after 228 Miles. Cross Section.
		lbs.	mm.	mm.		
110266	Near rear	27⅜	23·5	16·5	108·56	4·34
110358	Off rear ...	26½	23·5	16·5	108·69	4·41
110304	Near front	27⅜	23·5	18·0	108·31	4·41
110350	Off front...	27¾	23·0	18·0	109·06	4·31

The American Invasion."

FOLK will probably be wondering who is responsible for the mysterious and humorous publication which has just been circulated under the above title. It certainly does credit to the great reputation of the author, who may be sought for on pages 20 and 21 of the skit. There are just a half hundred of pages between the covers, a goodly share of which comprise burlesque advert. announcements. One shilling is the price asked for it.

French Splash-guard Trials.

LAST week-end the second annual trials of mud splash-guards for motor cars were held by the Seine and Oise A.C. at Versailles. On Sunday morning the 15 devices fitted to cars were tested by being driven over a muddy road between boards which received the splashes. Nine devices were simply rings of rubber, or leather, placed alongside the tyres, five were brush-like aprons mounted outside the wheel, while the remaining two were aprons somewhat similar to those used on the Paris omnibuses. First and second prizes were won by devices of the circular type, M. Garcher being first and M. Menu second.



UP-TO-DATE ART IN WINDOW-DRESSING.—A clever and realistic arrangement which formed one of the attractions at Messrs. William Whiteley, Ltd.'s establishment in Queen's Road, Bayswater, during the past week, very appropriately on view having regard to the Olympia Motor Show. The car utilised for the purpose is a 7-h.p. 2-cyl. De Dion Bouton.

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Caution is necessary at Potters Bar as a control may be working.

LANCASHIRE.—Stone setts are being laid in Walton-le-Dale, 1¾ miles south of Preston, half width, lighted at night. Special care is necessary as there is only space for one car to pass.

Preston-Wigan Road.—Very rough surface and many holes between Bamber Bridge and Standish.

YORKSHIRE.—*Leeds District.*—Controls are working at Moortown, Leeds, Thwaite Gate, Hunslet, and through the speed limits at Ilkley and in Burley-in-Wharfedale.

EAST.

NEWMARKET DISTRICT.—*Royston-Newmarket Road.*—Likely to be under water under the Railway Bridge at Pampisford Station.

Control likely to be working between Castle Hill and the Railway Bridge on the Norwich Road.

SOUTH.

BATH ROAD.—Maidenhead High Street is closed, sewer being laid, alternative route first to left by Bear Hotel.

BRIGHTON ROAD.—Roller working on Brighton road, Redhill, full width; also between Horley and Povey cross roads. Under repair between Sayers Common and Hickstead. Controls likely to be working at Burgh Heath, also at Smitham Bottom between Hooley and Purley.

LONDON DISTRICT.—On account of timing operations special care is necessary at Regent's Park Road, N.W.; near Church End Station, Finchley; Golder's Green; between Redcliffe Gardens and The Boltons, Earl's Court Road, S.W.; Victoria Embankment; Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; Croydon; Purley; between Wimbledon and Ewell; Hounslow-Staines; Hounslow-Colnbrook; Putney Hill; Harlesden; Maida Vale; Highgate; Holloway; Lewisham; Sudbury to Harrow.

MIDDLESEX.—Control likely to be working on the main Pinner road.

OXFORD.—Controls likely to be working at the following places: High Street, St. Aldates Street, New Road and Botley Road, all of which are in the 10-mile limits.

SOUTHAMPTON ROAD.—Controls are working at night through Egham. Repairs in hand on the Egham-Windsor road; between Sunningdale and Bagshot; near Windmill Inn, also between Jolly Farmers and Frimley.

SURREY.—*Portsmouth Road.*—Flashlight controls are working between Kingston and Esher.

Eastbourne Road.—Special care is advisable as a control may be working near Kenley Police Station, and the Gas Works, Whyteleafe.

Woking-Morrow Road.—Likely to be flooded at Burpham; alternative route, continue on London road and turn left *via* Send and Woking.

WEST.

GLOUCESTER DISTRICT.—*Cheltenham-Northleach Road.*—Special caution is necessary at Andoversford, the bridge in this village being under repair.

CARDIFF DISTRICT.—Special caution is needed in Cathedral Road from Cowbridge Road to tram terminus; on the Cowbridge-Swansea road at Canton; at Rumney on the Newport road; Leckwith Common on the Penarth road; also at Dinas Powis and Eastbrooke on the Cardiff-Penarth-Barry road, and from Commercial Street to Waterloo Road on the Cardiff-Newport road; also at Penylan Road, Roath, at the foot of the hill.

Launceston-Penzance Road.—In bad condition 5 miles east of Bodmin; members should beware of straying cattle on Bodmin Moors.

Exeter-Honiton Road.—Main road at Clyst Honiton, 4½ miles east of Exeter, is likely to be flooded; there is another route.

MIDLANDS.

TEWKESBURY-WORCESTER ROAD.—Under repair at Clifton, Severn Stoke, road being widened 4 ft., clear at night; will occupy about two weeks.

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Petrol Costs and Taxicab Fares.

LONDON is threatened with another dislocation of its motor cab traffic, and the continued high price of petrol is becoming a very serious matter for owners of these vehicles. As the men will not pay the extra price for petrol it falls upon the owners, and as they are only permitted to charge fares according to a fixed schedule they cannot regain it from their patrons. One gentleman, prominent in the industry, stated that the only hope is if the Home Secretary will consent to the raising of fares.

COMPANY DOINGS.

Deasy Motor Car Manufacturing Co., Ltd.

THE directors' annual report for the year ended September 30th, 1912, shows that the profit upon the year's trading amounts to £26,015 13*s.* 2*d.*, from which appropriations have been made as follows:—Depreciation of plant and machinery, fixtures, tools, &c., amount written off development account, directors' fees, managing director's remuneration, and bonus to staff, &c., £11,607 16*s.* 7*d.*; bank interest, £267 8*s.*; debenture interest, £500; leaving a balance of £13,640 8*s.* 7*d.*, to which must be added the sum of £2,001 10*s.* 2*d.*, balance of profit from last year, making a total of £15,641 18*s.* 9*d.* From this amount the directors propose to pay a dividend of sixpence per share, being at the rate of 8¼ per cent. per annum, free of income tax, absorbing £3,468 8*s.* 6*d.*, leaving a balance of £12,173 10*s.* 3*d.* to carry forward.

The reputation of the company's productions continues to increase, and the policy of the company in constructing the highest class of luxurious motor cars has proved most successful.

NEW COMPANIES REGISTERED.

Calthorpe Motor Co. (1912), Ltd., Norfolk House, Cannon Street, Birmingham.—Capital £70,000 in £1 shares (35,000 6 per cent. participating pref.). Directors, The Rt. Hon. Lord Teynham, Wilfrid Hill, Daniel Taylor, George William Hands, Harry Joyce.

John Warrick and Co., Ltd.—Capital £60,000, in £1 shares (30,000 pref.). Acquiring the business of a motor and cycle manufacturer carried on by J. Warrick as John Warrick and Co. at the Monarch Cycle Works, Caversham Road, at Northfield Road, 34, St. Mary's Butts, Reading; and at 402-6, Edgware Road, 9, 10, 12, 13, and 14, Milner's Mews, and 143, Fulham Road; London; and at 1A, Wynne Road, Brixton. First directors, J. Warrick, J. L. Warrick, W. Warrick, and J. H. Warrick.

Private Companies.

B. C. F. Motor Patents, Ltd., Capel House, 54, New Broad Street, E.C.—Capital £1,500, in £1 shares (750 "A" and 750 "B"). Mechanical and general engineers. Under agreement with W. Cochrane.

Brabbins' Fuelless Engine Synd., Ltd.—Capital £500, in £1 shares. Engineers, cycle and motor manufacturers, &c. First directors, A. G. Jeffs, B. Brabbins, W. Sammons, and A. E. Edwards.

Francis Brothers, Ltd., 302, High Street, Barnet.—Capital £2,000, in £1 shares. Cycle and motor engineers and manufacturers, &c. First directors, W. J. Francis, G. F. Saul, W. D. Wallis, and H. C. Francis.

R. Gibson and Co., Ltd.—Capital £4,000, in £1 shares. Acquiring the business of an engineer (motor and otherwise), &c., carried on by R. Gibson at Trafford Weint, South Castle Street, and 7-11, Peter's Lane, Liverpool, as R. Gibson and Co.

Llanelly Motor and Electrical Engineering Co., Ltd.—Capital £5,000, in 900 preferred ordinary shares of £5 each and 500 Founders' shares of £1 each. First directors, C. G. Ace, L. L. Pugh, and D. J. Evans.

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PUBLICATIONS RECEIVED.

C.A.V. Dynamo Queries and Replies, with Running Instructions. C. A. Vandervell and Co., Warple Way, Acton Vale, W.

"Something Striking." C. A. Vandervell and Co., Warple Way, Acton Vale, W.

Ten Years of Motors and Motor Racing. By Charles Jarrott. London: Grant Richards, Ltd. Price 2*s.* 6*d.* net.

Catalogues.

Britain's Imminent Danger. By H. F. Wyatt and L. G. H. Horton-Smith. London: The Imperial Maritime League, 2, Westminster Palace Gardens, S.W. Price 1*s.*

U.H. Arc Ignition Magnetos. S. Wolf and Co., 115, Southwark Street, London, S.E.

Bosch Arc Light Ignition (Type "ZU 4"). The Bosch Magneto Co., Ltd., 40-42, Newman Street, W.

The Spencer-Moulton Removable Flange Rim. George Spencer-Moulton and Co., Ltd., 77-79, Cannon Street, E.C.

Spencer-Moulton Tyres. G. Spencer-Moulton and Co., Ltd., 77-79, Cannon Street, E.C.

What Others Say about the Spencer-Moulton Rim and Tyre. G. Spencer-Moulton and Co., Ltd., 77-79, Cannon Street, E.C.

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ROUNDABOUT NOTES.

TALBOTS playing third fiddle to Napier. Yes, indeed, but at swimming, not motoring. In addition to Football and Cricket Clubs, the staff of Clement-Talbot, Ltd., run a swimming club, which gave its first display at the Kensington Baths on the 25th ult. A splendid programme of races and exhibition swimming and diving had been arranged, and Mr. Montague Holbein demonstrated some of his cross-Channel methods. A team from the Napier works at Acton, after a real hard struggle, won the race, in which Talbots were placed third. It was a very pleasant evening, and quite a welcome relaxation from the pressure which has prevailed in the works night and day for some time past in preparation for the Olympia Show.

QUITE a novelty is a little booklet to hand from Messrs. C. A. Vandervell & Co., Warple Way, Acton Vale, W., which in the form of question and answer give a great deal of useful information as to the Why and How and Where of the C.A.V. Dynamo Car lighting system. If this interests you send a card to them, mentioning the AUTO., and you will receive a copy.

LIKE a number of other firms, Messrs. Bradbury, Rinman & Co., Ltd., Sole Concessionaires of the "Hampton" Car, were unable to obtain space at Olympia this year, but they are showing this excellent cheap car at their showrooms, 230, Shaftesbury Avenue, W.C., where intending purchasers may arrange trial runs, &c., Mr. Bradbury, himself, will be able to be seen on the Vieo Stand (No. 198, at Olympia), in which he has considerable interest as a director of that Company, and will be pleased to answer any questions regarding the "Hampton" car.

FROM the makers of the Argyll motor car comes the 1913 edition of the Argyll album. Like its predecessor, the production is an artistic one, and now contains a fully illustrated technical description of the Argyll elliptical single sleeve-valve engine, as well as an article on the vexed question of braking by Mr. G. H. Cutbush, M.I.E.S., A.M.I.M.E.

MR. G. R. BROMLEY, who has had long experience with the Oxford Motor Company, the Daimler Company of Coventry and Manchester, and Bedford Motors, Ltd., has joined Messrs. Chenard and Walcker as travelling representative. He hopes to have the pleasure of meeting his old friends at Olympia on Messrs. Chenard and Walcker's Stand, No. 19. After the Show, Mr. Bromley proposes to make an extensive tour through the country.

EXCEPTIONALLY bright is the business outlook of the Austin Motor Co., Northfield, Birmingham. We are informed that many of their agents have either doubled or trebled their orders for next season, and as a consequence the company hold contracts for the whole of their output.

MANY visitors from the provinces will again thank Messrs. Clement-Talbot, Ltd., for their Guide to London. It tells how to get to Olympia and the Talbot Works from all parts, and gives particulars of the "sights," theatres, music halls, concerts and other useful information. Write to Messrs. Clement-Talbot, Ltd., Barlby Road, North Kensington, W., mentioning the AUTO., and they will be pleased to send a copy.

FOR the convenience of their clients and friends, Messrs. Brown, Hughes, and Strachan have arranged to have an Aberdonia car running between their works at Park Royal and the Olympia Show

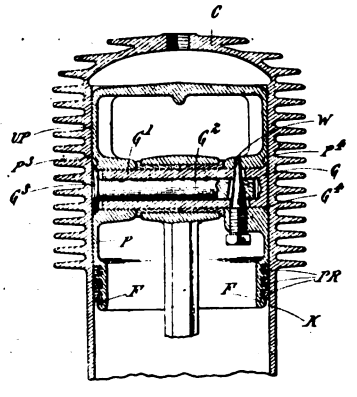
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BRITISH PATENTS.

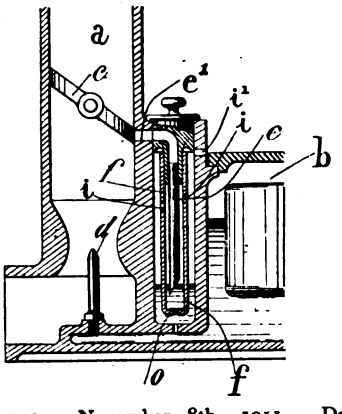
Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

22,561. October 12th, 1911. Improvements in or relating to the Pistons of Explosion Engines. G. W. A. Brown and Clement-Talbot, Ltd., both of Barlby Road, North Kensington, W. In this invention the piston body is constructed with a closely fitting unpacked upper portion, that is to say, a portion fitting the cylinder-bore with only a working clearance, in combination with a packing on the lower part of the piston only. It has been found that a piston with these two characteristics works well in practice, and that with it there are not experienced the troubles which arise in the



working of other pistons due to the passage of an excessive amount of lubricant past the pistons along the cylinder walls. So long as excess lubricating oil is kept below, it will not cause trouble, and the exhaust of the engine will not be a smoky one. In the drawing of the cylinder of an engine, the cylinder, C, and piston are in vertical central section. The piston, P, has a closely fitting upper portion, U, P, not packed, and the piston-rings, P, R, are all at the lower end of the piston, P. The flange, F, is reduced to a diameter less than that of the upper portion, U, P, of the body; this affords a clearance, K, facilitating the wiping or "scraping-down" action of the lower face of the lowest of the rings, P, R. The gudgeon-pin, G, is situated in the closely fitting upper portion, U, P, of the piston-body, and is in two parts, G^1, G^2, each with a bevelled head, G^3 or G^4, fitting into corresponding seatings, P^3, P^4, in the piston-body. A tightening-wedge, W, screw-threaded into a part of the piston is employed to draw the bevelled parts down hard on to the seatings, preventing gas from passing them; the wedge-pin, W, also serves to keep the gudgeon-pin in place.—October 16th, 1912.



24,932. November 8th, 1911. Date claimed under International Convention, October 3rd, 1911. Improvements in or relating to Carburettors for Explosive Motors. The Soc. Du Carburateur Zenith, 55 Chemin Feuillat, Lyons.—This invention relates to improvements in carburettors of the Zenith type, wherein an auxiliary fuel supply orifice is arranged adjacent the edge of the regulating or butterfly valve and from which the supply is practically constant. The drawing illustrates the construction in which orifices, *i i* and i^1, are shown in the well tube, *f*, for the purpose of establishing atmospheric pressure in said tube, consequently these orifices must be of sufficient size so that no suction can be established in the tube and so that the discharge of the orifice, *o*, always remains constant. The combined sectional area of the orifices, *i i*, is less than that of the orifice, i^1, so as to allow a certain amount of suction to be produced in the tube, *f*, for the purpose of increasing the discharge of the orifice, *o*, when the suction is very great, which occurs at the moment of starting when the orifice, e^1, is scarcely uncovered by the butterfly valve, *c*. To obtain this result it is necessary that the orifice, e^1, should be opposite the edge of the throttle valve. It is possible to select such diameters for the orifices, *i i*, as to allow of varying degrees of suction acting on *o*, and of consequently regulating the supply from this orifice for the amount of suction prevailing at e^1. The discharge from the orifice, e^1, will vary in proportion to the suction caused by the motor, and in accordance with the level of the liquid in the well tube, *f*, *e* is the tube dipping into the auxiliary well.—October 16th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1912.

Published November 7th, 1912.

485. J. W. FITZGERALD. Starters for I.C engines.
5,018. W. E. AYRES. Carburettors.
6,663. C. H. MYERS. Non-skids.
7,733. G. AND L. INRIG. I.C. turbines.
7,992. ALLMANA SVENSKA ELEKTRISKA A.-B Electric cars.
9,208. J. M. DAYTON. Carburettors.
9,385. A. SAUVERT. Elastic wheel.
9,480. J. E. CLARKE AND R. H. STEVENS. Mud-guards.
10,624. G. SILVESTRI AND OTHERS. Rotary engines.
12,560. A. SANCHEZ AND C. BARADAT. Rotary I.C. engines.
13,020. BERGMANN-ELEKTRICITATS-WERKE A.-G Exchangeable wheel.
13,086. TEXAS AUTO SPECIALTY MFG. CO. Wheels
14,074. F. J. MORGAN. Car body and seats.
16,410. R. BLAKOE. Wheels.
20,541. A. JOHNSTON. Wheels.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 619. (No. 46, Vol. XVII.) | NOVEMBER 16, 1912. | Weekly, Price 3d. Post Free, 3½d.



"Auto." (Yellow Cover) Copyright.

OLYMPIA SHOW.—A general view of part of the main hall.

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The AUTO MOTOR JOURNAL. (YELLOW COVER).

EDITORIAL AND GENERAL OFFICES:
44, ST. MARTIN'S LANE, LONDON, W.C.
Telegrams: "TRUDITUR," London.
Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
	s. d.	s. d.		s. d.	s. d.
United Kingdom	3 6	7 0	United Kingdom	7 0	14 0
Abroad	6 6	13 0	Abroad	10 0	20 0

Remittances.

Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

Olympia. Every year as Olympia comes round you hear wiseheads asking one another what there is to see and what there possibly can be fresh at the Show. Everyone says "oh! nothing," but everyone is terribly interested all the same, and although they may not be able to point out to each other just exactly what it is they have been most interested in, nevertheless the sum total of their impressions unquestionably amounts to a net gain of information as the result of their visit to Olympia. So it is every year. Cars are much the same individually and yet by the time you have walked round the stands you begin to realise that progress, like the flowing tide, has placed its watermark yet a little higher up the bank than when you last observed it. More firms than ever are demanding admission to the exhibition as exhibitors, and more people than ever pay their shilling at the turnstiles and even their half-crowns and crowns to see the Show. Hundreds who have never possessed cars before go there in order to buy, and thousands walk the aisles daily in the hope that some day they may have a chance of becoming a purchaser. Then there is a solid phalanx of old stagers who know all there is to know about cars in their own estimation, and they will take you with much conscious pride to the stands of the firms they patronise and point out to you where the manufacturer has shifted a bolt from one spot to another, and will give you a critical discourse on the merits and sometimes on the demerits of the change. Each of these firm-rooted motorists is interested in his own favourite chassis, and is apt to look with a certain amount of contempt on any other, but the editorial eye ranges over them all equally, and is only concerned to know how it is possible to do credit to such large numbers.

This year is more than ever a coachwork show, by which we mean to say that the chassis is gradually being displaced from its position of honour as the centre of attraction on many of the principal exhibits, and doubtless restrictions of space are mainly to account for this, but the fact remains that when a firm has already arrived it votes in favour of a complete car when it has to choose between exhibiting the vehicle as a whole or the chassis portion only. And there is no doubt that the firm is right. The purchaser of a car, and particularly if it happens to be a woman, is far more attracted by a carriage than a piece of machinery. The average owner hopes that he may never even so much as know that the chassis exists for all the trouble it is going to give him afterwards. Therein he is also right, because the time has come when a first-class car in the hands of a first-class chauffeur will perform with the regularity of a locomotive, provided always that the owner has the first-class common-sense to give the chauffeur a free hand in his job. Locomotives, by the way, are constantly under proper attention and regular inspection, which is why trains keep time. If a modern owner does not want to be bothered with the car himself he must employ a chauffeur who does, but having employed a chauffeur he must be prepared to give his man facilities for doing the work properly.

From this point of view the absence of chassis at Olympia takes a different and a very much to be regretted aspect. The chauffeur is a man whose business it is to know things, and the firm who tries to hide from the chauffeur's eye the features of its chassis construction is only asking for trouble in the long run. A railway company might just as well have their locomotives inspected by their passengers on the platform for all the use it is to have a car in the hands of a chauffeur who doesn't understand its details. Chauffeurs are not just driving automatons, they are men with brains, and what

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we know of the members of the National Society of Chauffeurs in particular, have immensely impressed us with the fact that they are keen to use them. So, from the chauffeur's point of view, the chassis at Olympia has an advantage both to himself and to the firm that exhibits one. Not that the chauffeur is in any way beguiled by the superficial appearance of chassis in this connection. He knows well enough that the chassis carries a body, and when it comes to a question of accessibility, and it is always a question of accessibility from the very moment that the body comes into contact with the side members of the frame, he knows that the chassis and the cómplete car are often two very different objects. Thus, the chassis by itself is of no use to the chauffeur either, any more than it is to the prospective car owner. The ideal exhibit, in fine, is the car complete and the chassis beside it.

With the modern car in all its luxury, not always refined, the question of accessibility has an ever increasing importance, for it is a certainty that any chassis requiring access to the machinery through the interior of the carriage proper is going to render the upholstery liable to immediate and irreparable damage. No one can work on a chassis without getting dirty nor without making everything in the immediate vicinity dirty and oily also. And, such being the case, there is nothing for it but to design the chassis so that every part requiring inspection is accessible from the driver's end of the car. Alternatively, the body as a whole must be hinged and be capable of being lifted up single-handed.

This is but one of the many ideas that come uppermost in the mind as one visits the Olympia Show, now on the point of closing. Others there are innumerable, and several of them find expression in our articles elsewhere. The feature of this year's Show is said to be the self-starter; we say, is said to be, because when it comes to the point there are not so many self-starters in evidence when you come to count up the number. The self-starter is interesting, and the problem of self-starting a car is one on which much can be and has been written; also, it is one on which much more is likely to be written in the future. There is no doubt that the owner and the chauffeur are alike agreed that the starting-handle is an anachronism on the modern car, but the thinking engineer is much concerned as to where all this weight-adding process is going to come to an end. Motor car construction at the present time is resolving itself into two fundamental problems; one is how to obtain uniform materials, and the other is how to make the chassis lighter without destroying either its strength or convenience. The former involves a very close study of metallurgical science, and has already led some of the bigger firms to take up metallurgical work on a large scale in their own factories. The other is likely to involve sleepless nights for the chief draughtsman, but in the day time and at Olympia we commend to their notice the spider-like chassis of a certain car that shall be nameless, but which is remarkable alike for its price and its design. The point in particular to which we draw attention is the back-axle. It weighs about as little as any bevel-driven back-axle could weigh, which is, we believe, also as light as any chain-driven back-axle ever did weigh, notwithstanding the fact that many people have said again and again that the chain-driven axle was potentially the lighter of the two. One little point about that axle is the fact that its spring attachments are as close up to the hubs of the wheels as they can be, consequently the overhang is small and the bending moment on the axle-tube as low as is feasible. Consider some of our modern chassis with narrow frames and narrow track springs; it all causes the axle to be heavier than it should be, and a heavy axle once it has been bumped off the road is the hardest thing possible on tyres. Particularly is there nothing worse than a heavy axle on a light car, and a light car is built in order that it may save the man of moderate means money on his tyre bill.

* * *

A Dangerous Suggestion.

Does the Executive Committee of the R.A.C., we wonder, approve of all that appears in that extraordinary production—the Club *Journal*? We ask, because we note in the current issue of the official publication an editorial expression of opinion on the question of the motor omnibus. The editorial "we"—or does "we" in this case mean the Club?—has noticed that suggestions have been put forward in Parliament and other places that motor 'buses should be so geared as to be incapable of exceeding the legal limit of speed. Quite rightly, the *Journal* points out the absurdity of the idea, and then goes on to say:—

"We do not think that those who suggest the gearing of motor omnibuses to a maximum speed of twelve miles an hour can be very well versed in matters mechanical. Their object—namely, to prevent unduly fast driving—is admirable, but their proposed method of attaining the desired end is ridiculous. If a positive preventive to over-great speed were needed, it could be easily achieved by fitting between the engine throttle and inlet-valves an auxiliary throttle operated by a governor, the latter actuated, speedometer-like, through a flexible cable from one of the road wheels. Such an arrangement as that suggested would not prevent the engine being run fast when starting or accelerating on the lower gears, nor would it entail absurdly low-gear ratios, with resulting vibration at the maximum speed deemed desirable. The governor mechanism might be locked securely away in a box beneath the bonnet, and any driver who could be proved to have tampered with it, or with the flexible cable or throttle-actuating rods, might be severely punished."

Now, all this might be relatively harmless anywhere else but we cannot help thinking that, appearing in the *Journal* as it does, it is invested with an air of the official expression of the Club's view. True, it is qualified so as not to lay it down that such automatic speed governing is necessary, but we are afraid the inference that the Club *does* think it would be a good thing can be read straight into the article from which we quote. For our part, we are absolutely against any form of automatic speed-check which operates at the legal maximum. It often happens, as every driver of experience knows full well, that the only way in which an accident can be averted is by rapid acceleration to something well above the limit. It may only be necessary to so accelerate for a distance of fifty

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yards or even less, but the power to so speed up must be there if accident is to be avoided. The argument may be adduced that no driver has any right to travel at a speed or in a manner which will bring him into a corner like this, and we would agree with the qualification that it must be through his own fault. But as often as not the driver of the motor vehicle is not the only deciding factor and the tight corner is very often not of his making, though it is left to his presence of mind and skill, plus the mobility of his vehicle, to get out of it without accident to himself or the other party to the *contretemps*. At the very least this matter is one of a debatable character, and we think it is much to be deprecated that the Club should practically be committed to an expression of opinion, even by implication, except after consideration and by express instruction given.

* * *

Road Racing to be Revived.

Speaking at the annual banquet of the S.M.M.T. last week, the Hon. Arthur Stanley, Chairman of the R.A.C., made a most important statement relating to the policy of the Club in road-racing matters, which was no less than, as mentioned in last week's AUTO., that next year is to see a revival of road racing in the Isle of Man, conducted under the auspices of the Club itself.

The first thought that will occur to many is that of how the trade is likely to look upon this departure in policy. There has been no British road race since the "Four-Inch," and that was run in 1908. The reason why racing died a sudden death—or, as it turns out, lapsed into a state of suspended animation—was that the trade set its face resolutely against a continuance of a game which, to their ideas, held more blanks than prizes. Races, trials, and competitions of every kind fell under the ban, and it began to look as though the sporting interest in motoring had disappeared for ever. Going back to the genesis of this anti-racing movement, we are not inclined to take the view that has so often found expression—that it was a simple matter of the jealousy of the older firms who had made their reputations on the road, and were determined to prevent the rise of stars of lesser magnitude into the firmament of the trade. Rather do we think that it came of a sincere belief that racing had nothing more to teach the constructor, and that the only benefits that could possibly accrue were the advertisement given to the movement plus the individual publicity that came to the fortunate winner, and that the game was genuinely not worth the candle. Add to this that there was certainly a strong feeling of disapproval of road racing in high quarters, and we think that the root of things has been fairly reached.

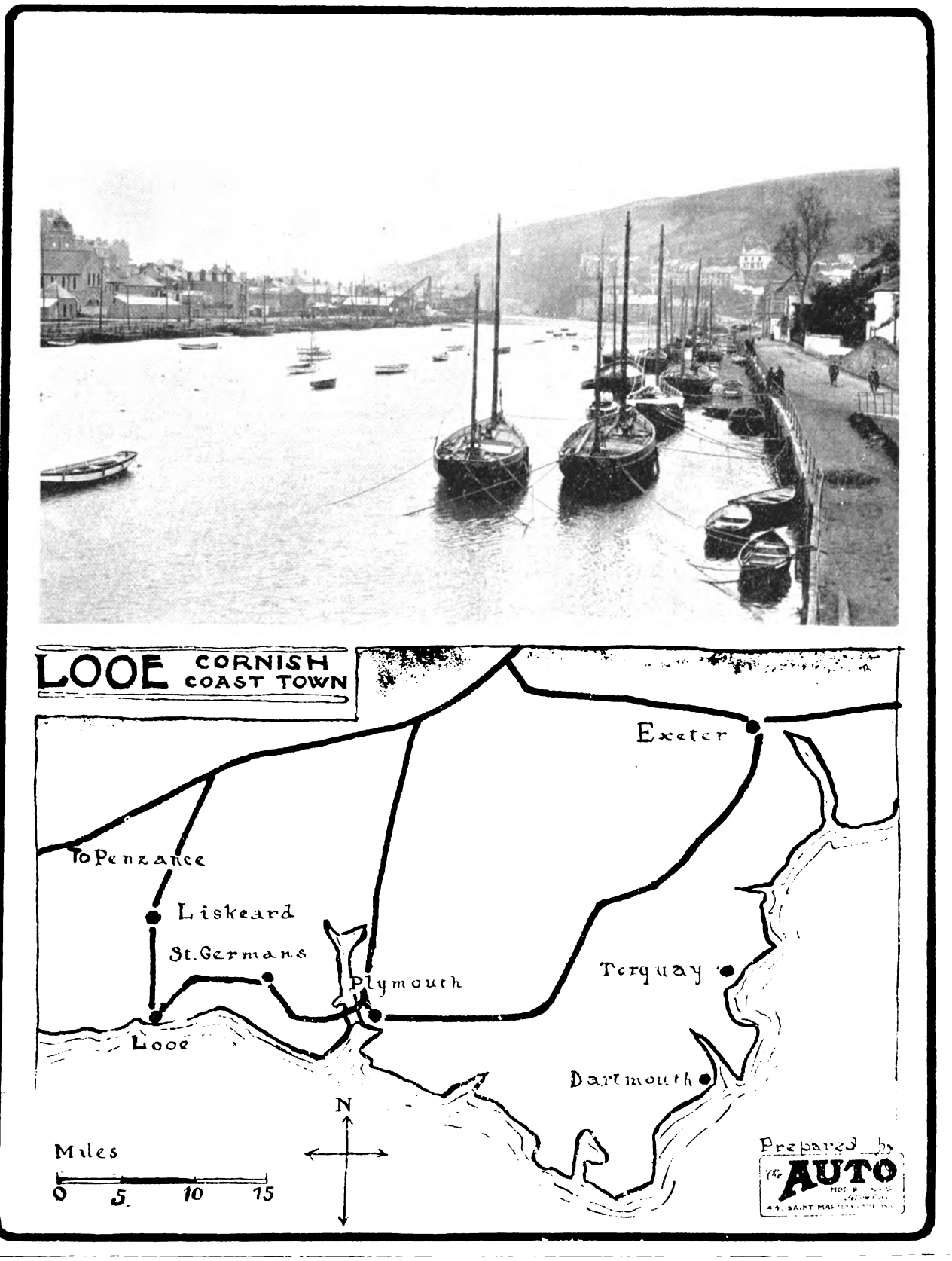
What has caused the change of view? We have heard various reasons adduced, and have even heard the trade accused of inconsistency in supporting the resurrected movement. That, to our mind, is merely the expression of vacancy of thought. After all, change of opinion is often but the visible sign of the added wisdom of another day. There is no charge of inconsistency in this matter, for conditions have altogether changed during the past two years. Road racing has revived in a most unexpected manner in France, while it has been manifested that there are a number of firms engaged in the British industry that hold strong views on the necessity of racing as a means to development and who have been driven across the Channel to do their racing. Then, the sweeping victory of a British team in the *Coupe de l'Auto* has given the racing interest a decided fillip and aroused a feeling that we ought to have a race of our own. Then, we are inclined to think that the real or supposed terrors of the "American invasion" have something to do with the matter. Such a race as that contemplated by the Club will undoubtedly concentrate a great deal of attention on the participants, whether they be winner or loser, and without desiring to be in the least offensive to our American friends, we look to seeing the whole of that attention focussed on British and European cars. The preliminary announcement lays it down that the race is designed to give to the manufacturer "an opportunity of showing that he can produce a car at a moderate price and of such quality that it will stand the severe test of a road race lasting two days." Hitherto the cheap American product has been conspicuous by its abstention from racing, either on road or track, with the exception of a burlesque entry for the Grand Prix this year. It may be that someone is banking on a similar abstention from the Isle of Man race, though for our own part we should greatly like to see a few entries of the "Invaders."

For ourselves we welcome the idea. Much water has run beneath the bridges since we did our part in all sincerity towards the abandonment, for the time being, of races and trials, and time has led us in the face of altered conditions to modify our views. Therefore, we say that we are entirely in favour of the revival, and hasten to extend our congratulations to the Club and the S.M.M.T. on their new movement.

Nothing has transpired about the conditions of the race, which must necessarily be in a somewhat embryonic stage as yet. The probability is that the classification will be by price, with a limit of engine capacity. The views of the Club have undergone modification since the "Four-Inch," and it is very unlikely that the same free hand will be given with regard to length and stroke and, moreover, taking a cue from the very guarded wording of the "Report," it is not at all unlikely that the race will be in the nature of an event for practically standard chassis. Perhaps the best limits to be set on engine classification would be in the neighbourhood of 90 mm. bore with a stroke ratio of about 1·5. It might be thought that a race for cars of 15·9 rating would attract more entries. That is possibly so, but although this rating is a very popular one, it must be remembered that there is a very wide class of something above the 15·9 which is being rapidly developed as a species of compromise between the lower and higher powers, a car, that is, which while not too expensive in initial cost is capable of touring at a good average, and is, withal, up to carrying one of the fashionable, heavy, closed bodies. However, we shall hear in good time exactly what the Club proposes in this direction.

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With the Camera and the Car.



Looe, an ancient Cornish coast town with a very mediæval appearance. The scenery in the neighbourhood is magnificent, and many of the quaintest parts of Cornwall are within easy reach.

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BRUGES  THE SWANS OF THE QUAI VERT.

By TOM R. XENIER.

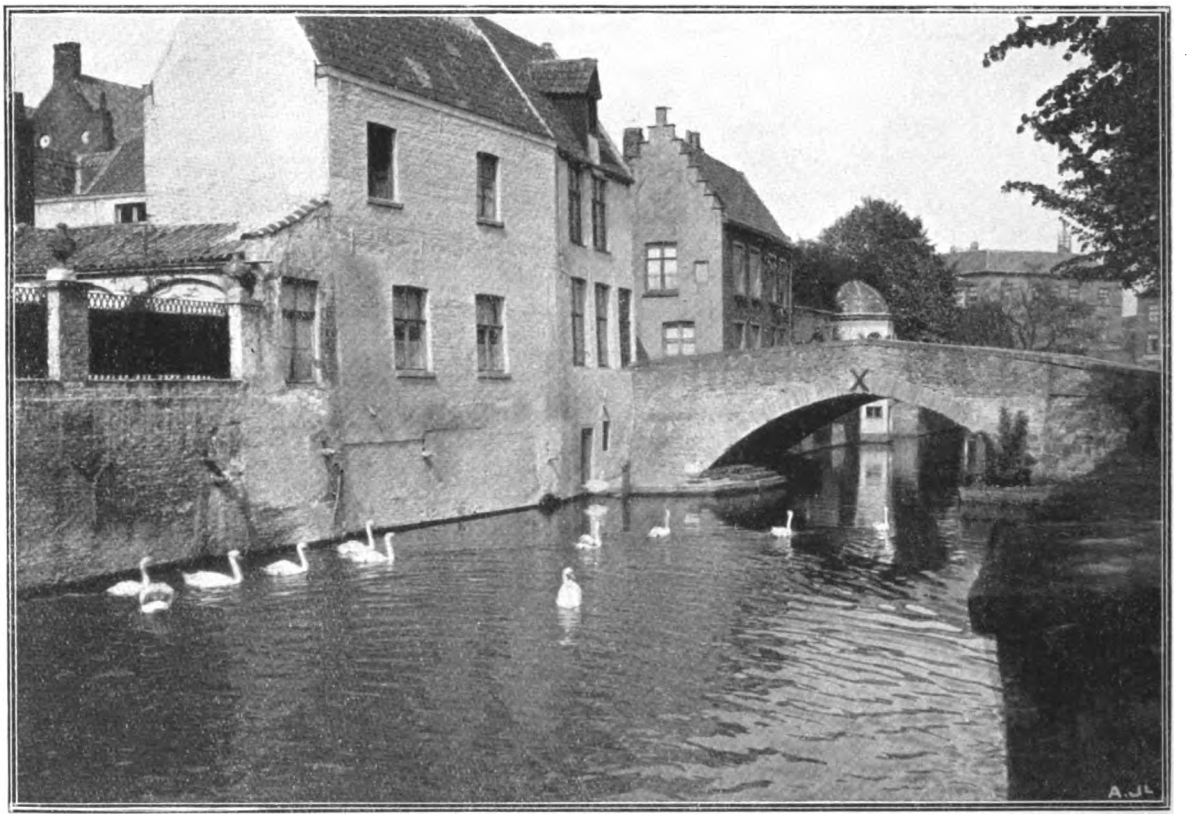
IT is to those stormy days that came on Bruges during the latter half of the fifteenth century that the swans of the Quai Vert owe their existence.

Mary of Burgundy was not long dead, and the Regent—Maximilian, her husband—soon had the city in an uproar owing to his extravagances and feuds. Treaties were broken, charters and rights ignored, whilst the ravages of his German mercenaries, and the ever increasing load of taxes, were rapidly bringing down the once mighty Bruges to the level of some fourth-rate city and its inhabitants to a condition of penury and want.

But in spite of his failings the Brugeois admired their ruler, putting all the blame on to his advisers instead, and it was during that temporary period of confinement which he was forced by his subjects to undergo, that, by means of riots and insurrections, they commenced to put in order the great affairs of State.

Executions were numerous in the Market Place, but it was not until a very considerable reward had been offered for his capture that Peter Lanchals—Maximilian's chief favourite and adviser—fell into the people's hands. Once in the power of the mob he got no mercy, and despite the Regent's pleadings for his friend, the old statesman-courtier met his fate on the scaffold, whilst the Brugeois rejoiced below.

Years passed on, and Maximilian, again the ruler of the city, ordered that swans should for all time be kept at the public expense on its canals in memory of his murdered friend—Peter Lanchals (the long-necked)—whose armorial bearing was one of these birds.



And thus it is, that wander where you will by the canals of Bruges, the swans are ever there, gliding gracefully along and reserving for their headquarters, as it were, the Quai Vert—that glorious old waterway that lies not far from the Pâlais de Justice, and bears the reflection in its dark stagnant waters of that same old lofty belfry tower which stood there even on that eventful day

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when Lanchals met his doom upon the scaffold in the Market Place below.

Many are the stories told of those quaint old birds, for they live to an enormous age, and, it is alleged, some may easily have seen the days of Maximilian; but there is perhaps no more striking characteristic in connection with them than their love for their ancient home. Once a couple were sent to Sluys, a present from the citizens of Bruges, but although the inhabitants of the little port proclaimed a fête day and turned out *en masse* to receive the new arrivals, even this, together with the continuous shower of desirable eatables which assailed the blasé birds, failed to prevent them, a few days later, from returning home to Bruges.

Far greater distances than that, at least so legends say, have been covered by those homesick birds, who would seem to know that it rests with them to preserve the memory of Lanchals.

Floating down the quiet canals, beneath the shadow of the ancient buildings and under many a mediæval bridge, the swans of Bruges seem just as much a feature of the town as do those famous bears who live in Bern; sometimes you will find them scurrying before an oncoming motor boat, but more often they are just waiting idly about, ready to pounce on any "tit-bits" that may chance to come their way, for the Brugeois love their graceful birds—faint reminders of those long gone days when Bruges was the richest city of Flanders

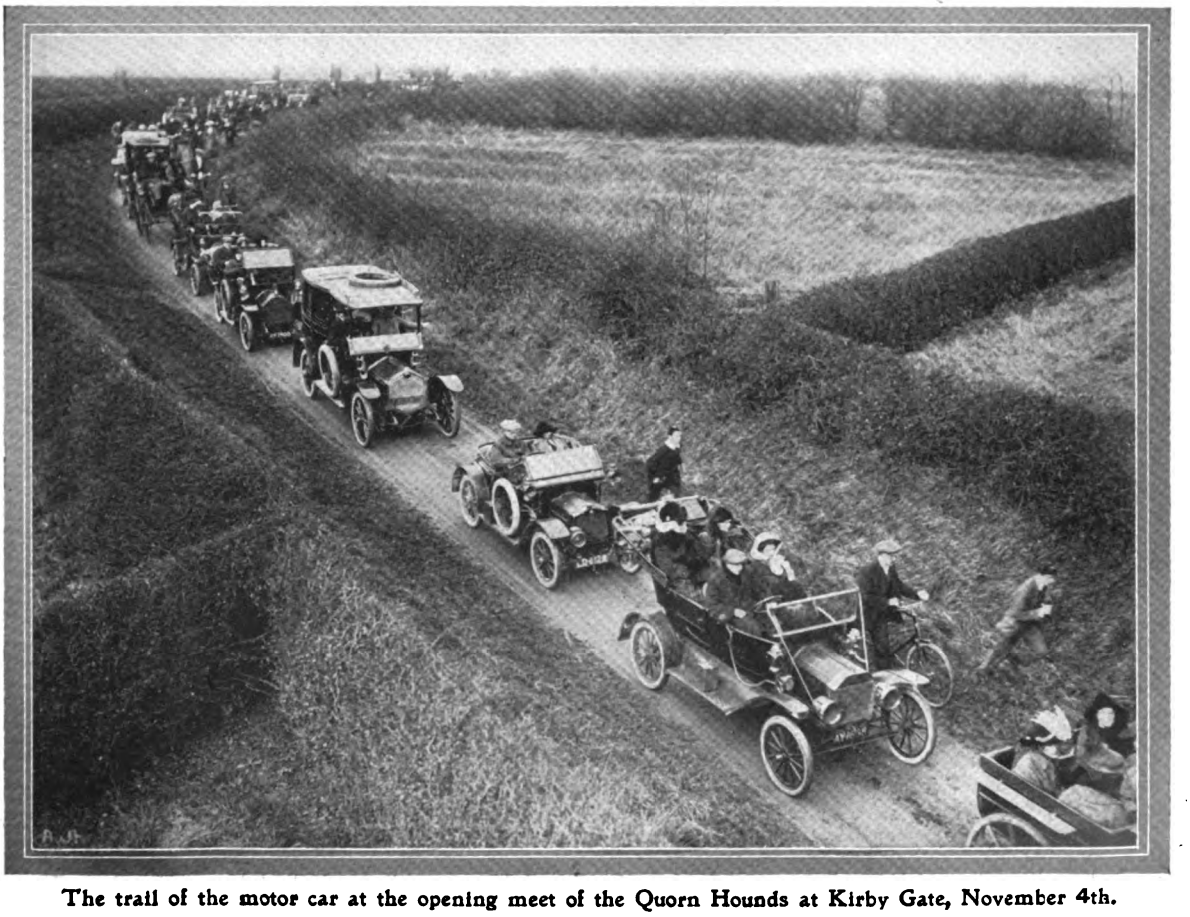
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Mr. Plowden on Youthful Chauffeurs.

MR. PLOWDEN is evidently of the opinion that the minimum age at which one may obtain a licence to drive a motor car should not be reduced. In fining an eighteen-year-old driver forty shillings and twenty-three shillings costs for dangerous driving, Mr. Plowden expressed the opinion that seventeen, at which age it was said that the defendant obtained his licence, was far too young for anyone to be entrusted with a licence to drive a motor car. One could not expect to find on the shoulders of a youth of seventeen the head of a man of fifty. Had the defendant been older he would probably have avoided the accident which lead to his appearance at Marylebone Police Court.

And his Views on Degrees of Inebriation.

ALTHOUGH Mr. Plowden thinks it is of first importance that drunken drivers should be punished severely, he does not think much of the tests usually applied by doctors at the police station. As a rule Mr. Plowden passes over the fact that a man, other than a motor driver, has had a little more drink than is good for him, if he is really capable of taking care of himself, but a different standard is called for in the case of drivers. A man might be able to talk rationally and walk, but yet not be able to drive, and if he were too drunk to drive then, although he may have had only a little to drink, he must be punished. In the case which drew forth this dictum, a taxi-cabby was charged with being drunk, but his "fare" said he had driven quite properly all the way from Chelsea to Finchley Road. Mr. Plowden said that if he did that he ought not to be convicted of drunkenness and so he discharged him.



The trail of the motor car at the opening meet of the Quorn Hounds at Kirby Gate, November 4th.

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OLYMPIA MOTOR SHOW 1912

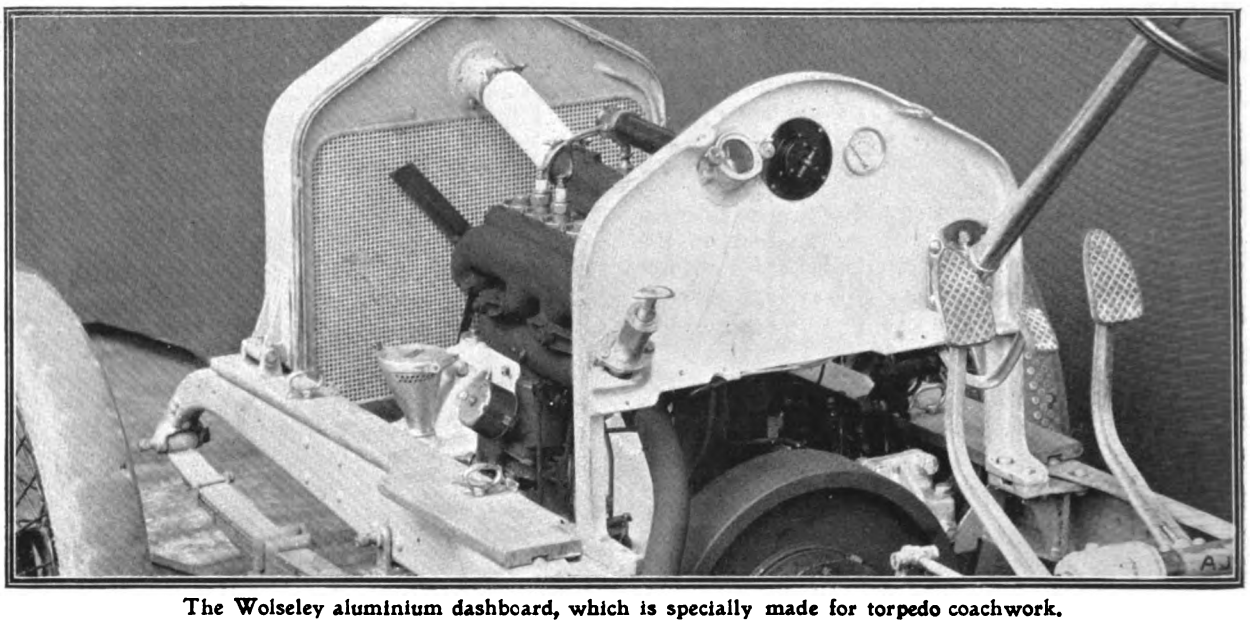
FROM THE NOTE-BOOK OF A WANDERER AT THE SHOW.

Thursday.

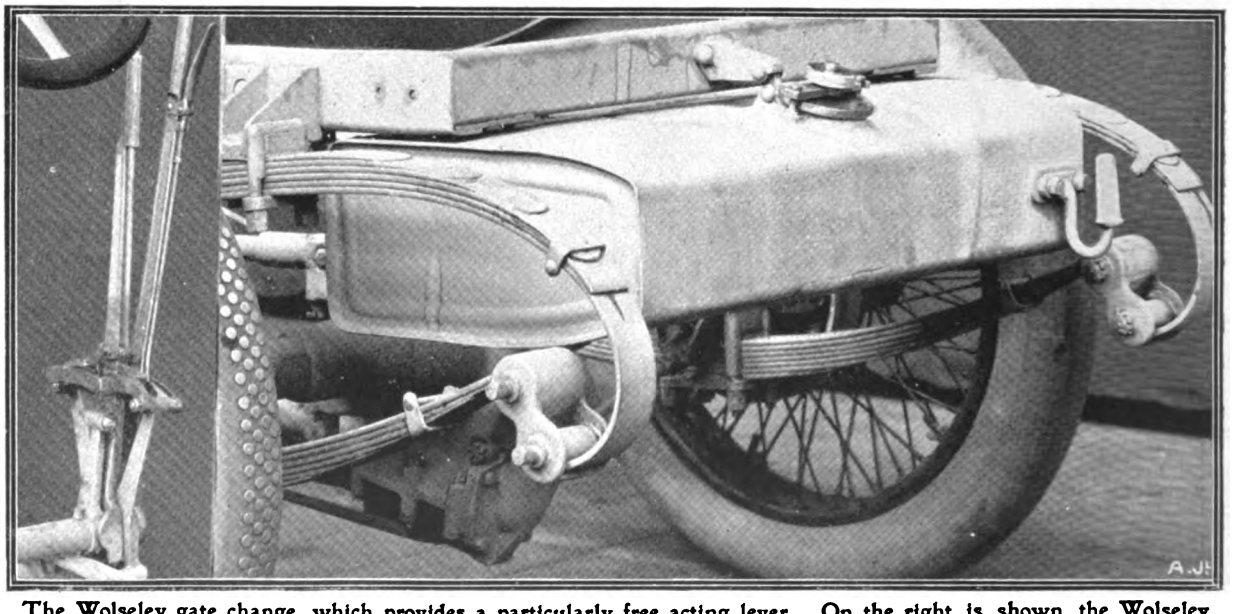
HAPPY thought; if the Press publishes its particulars of cars before they are built, why not visit Olympia before it is open? No sooner said than—attempted. Up betimes and *en route* to Addison Road in the balmy air of our November summer.

Show week, to the best of my recollection, is usually chosen by the clerk in charge of the tap for a reproduction

WOLSELEY CAR DETAILS.

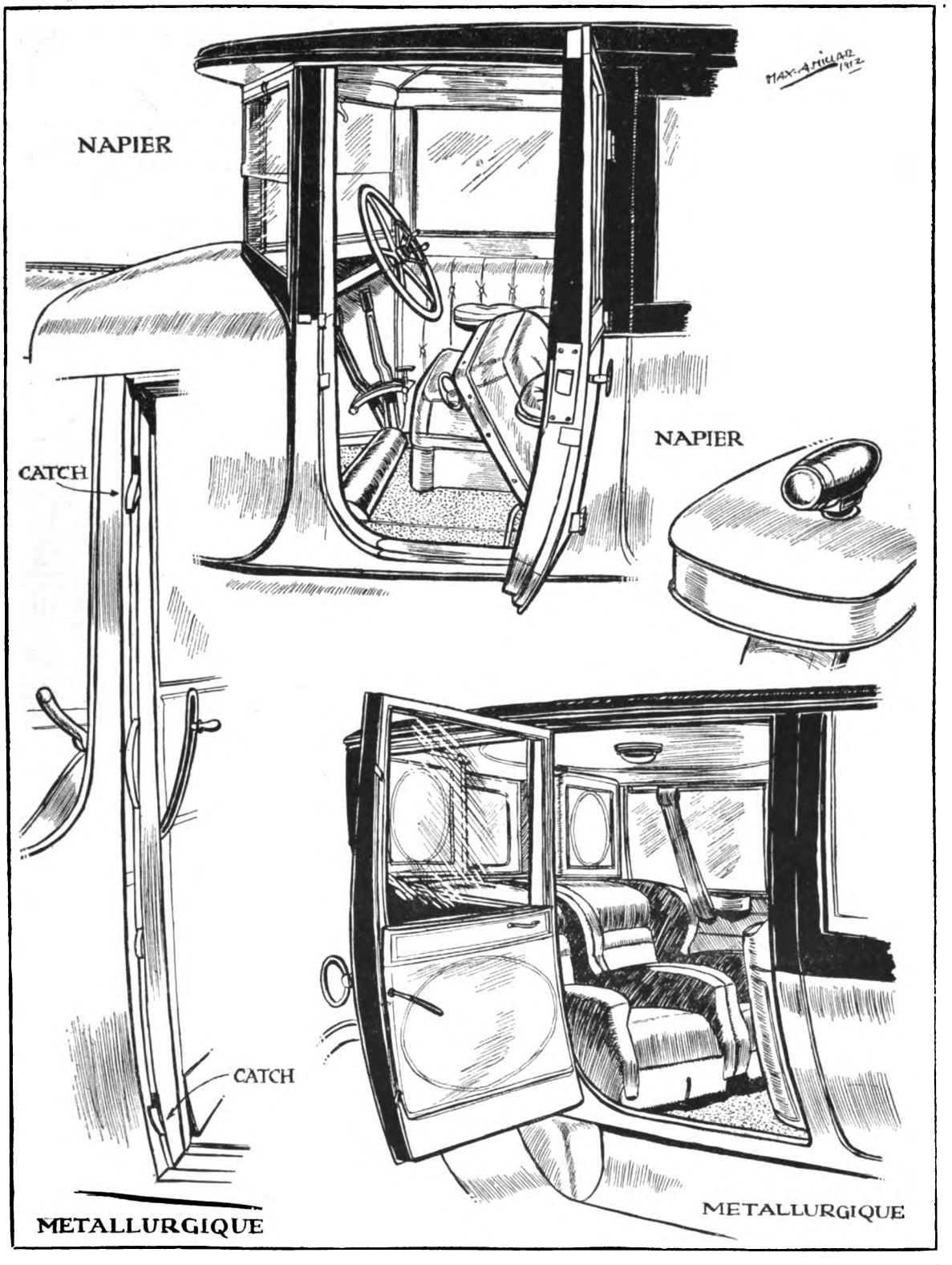


The Wolseley aluminium dashboard, which is specially made for torpedo coachwork.



The Wolseley gate change, which provides a particularly free acting lever. On the right is shown the Wolseley petrol tank, with its quick acting but air-tight filler cap.

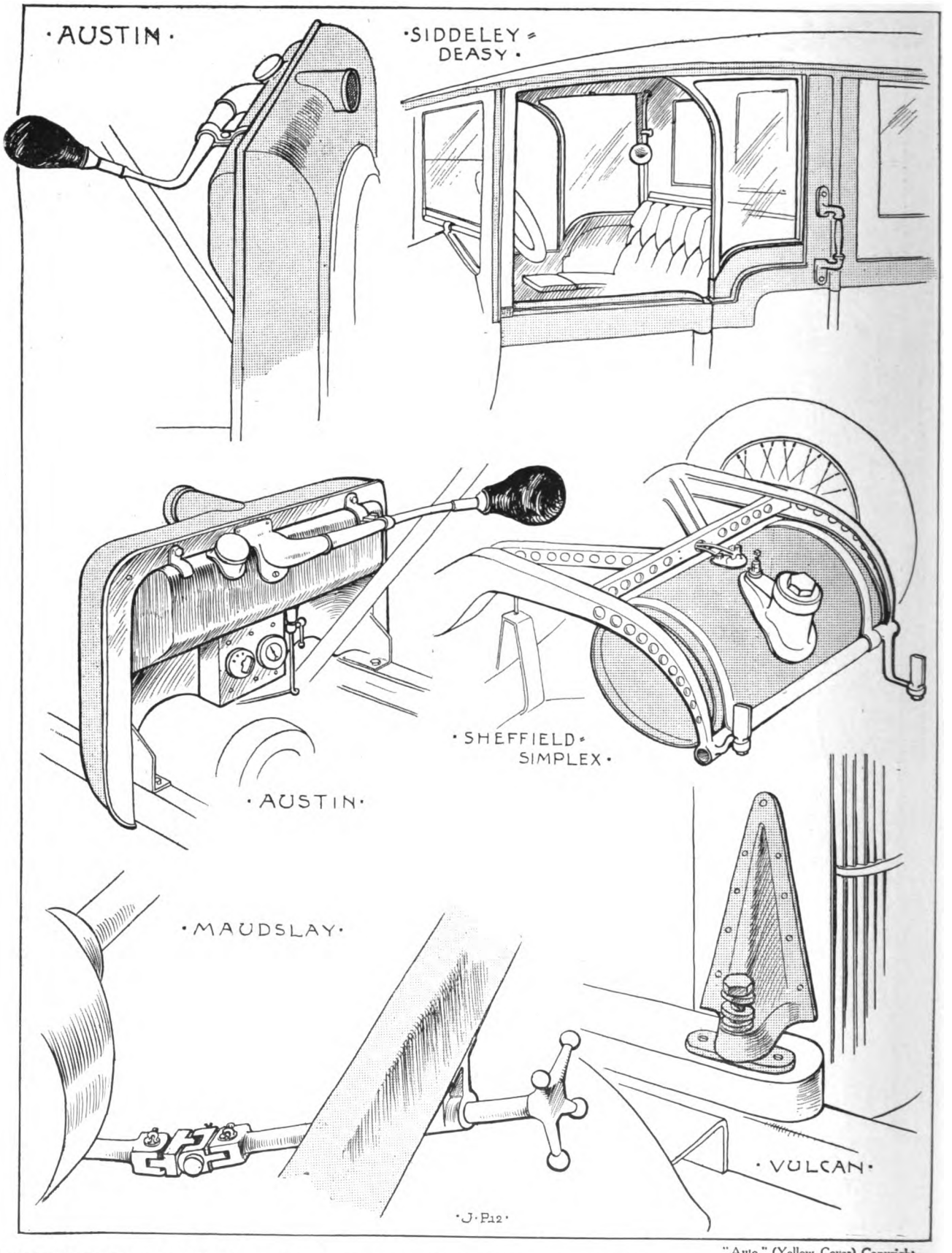
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"Auto." (Yellow Cover) Copyright.

Two of the finest cars in the Show are undoubtedly the Napier and Metallurgique limousines illustrated above. The Napier coachwork is painted black and yellow, and the black upper portion is quite unrelieved by lines, in which respect it is an immense improvement on any other attempt at the black and yellow combination in the Show. The Metallurgique we might describe as the Millionaire's Honeymoon Car, as it affords the most complete touring accommodation for two that has ever been devised in coachwork. A very ingenious feature of this car is the door catch, by means of which the door, when closed, is gripped tight on to the remainder of the body.

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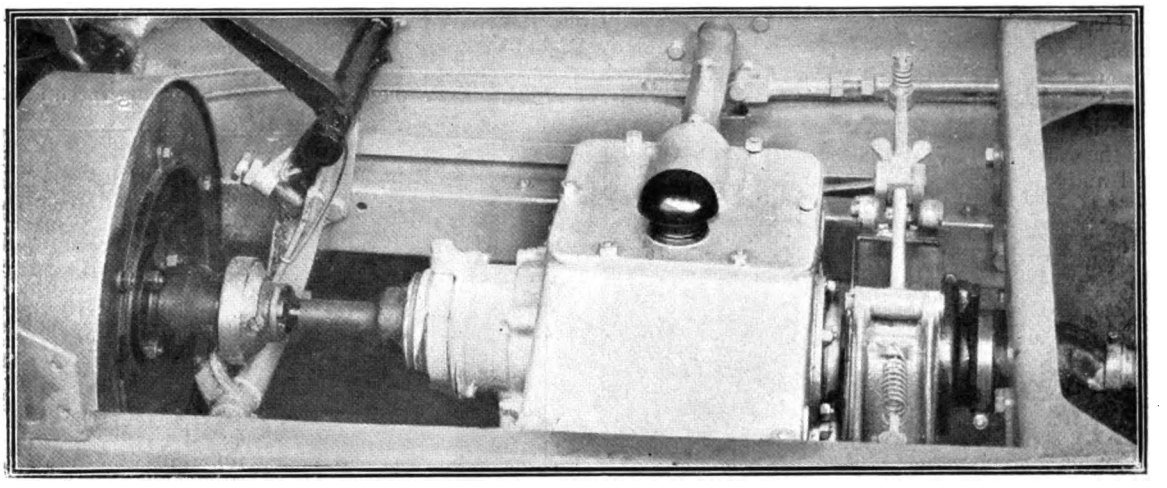


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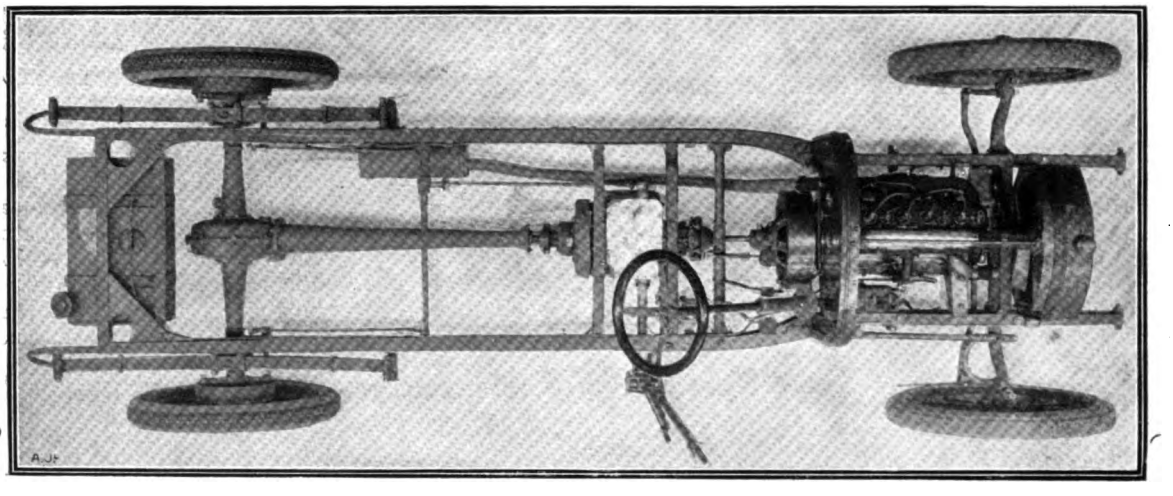
SKETCHES FROM OLYMPIA.—The Austin dashboard combination, showing the petrol tank and horn. Side windows to keep the draught off the front seats of a limousine. Two lamp brackets on the Sheffield-Simplex chassis in order to accommodate the regulation lights for Continental touring. An accessible foot-brake adjustment on the Maudslay chassis and a flexibly mounted radiator on the Vulcan.

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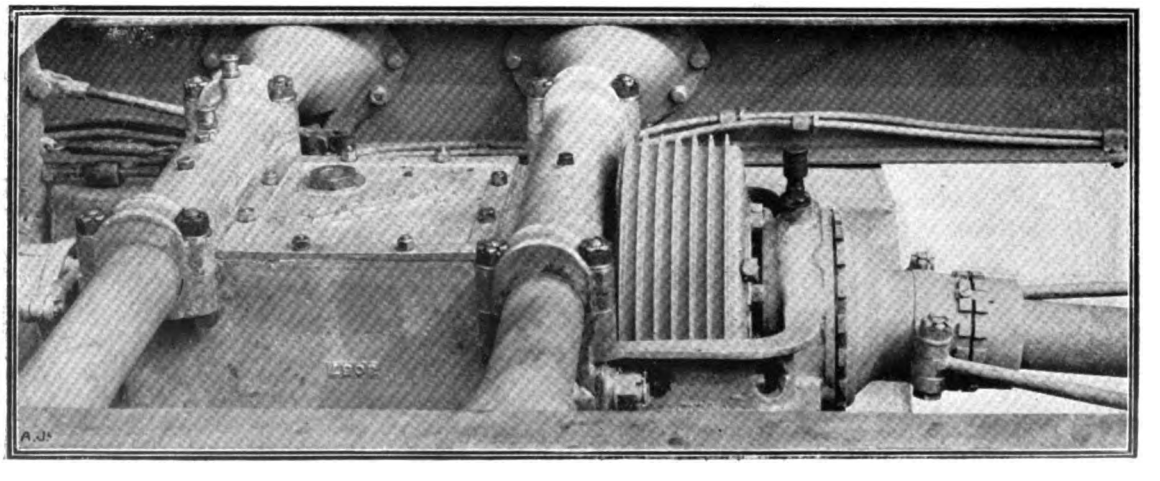
TRANSMISSION DESIGN.



The clutch, gear-box and foot-brake on the 10-h.p. Austin.



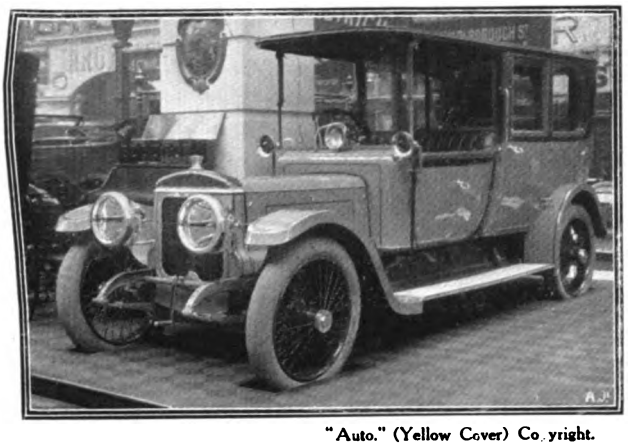
Plan view of a modern Benz chassis.



Method of gear-box mounting on the Crossley chassis.

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of the drama of the Deluge; so in stealing a march on *him* is one advantage of visiting the Show in advance, any way. But really, this summer, winter, or whatever season of the year it is supposed to be, is so weird that I should hardly be surprised if it forgot to rain throughout the whole week. And what would the coachbuilders, who are growing so affluent over the building of luxurious limousines, do then? The spontaneous reminder that the English climate is—English, must be largely accountable for the willingness of the purchaser to spring another hundred and fifty pounds on the limit he had in view,



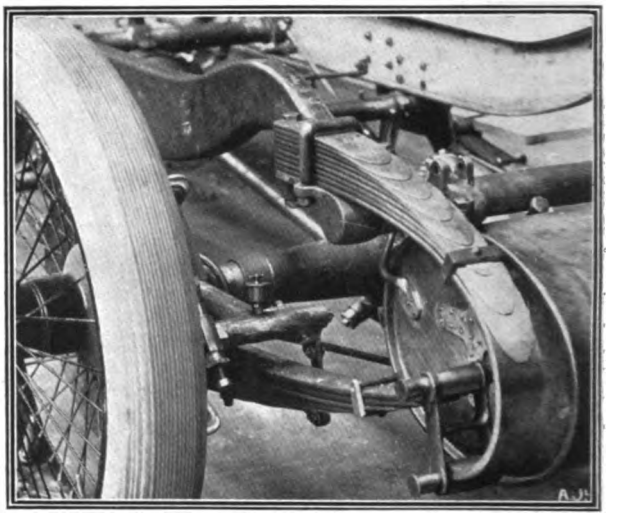
"Auto." (Yellow Cover) Co yright.

The 39-h.p. Daimler, a most refined example of the modern car.

in order that he may save himself the trouble of putting the hood up.

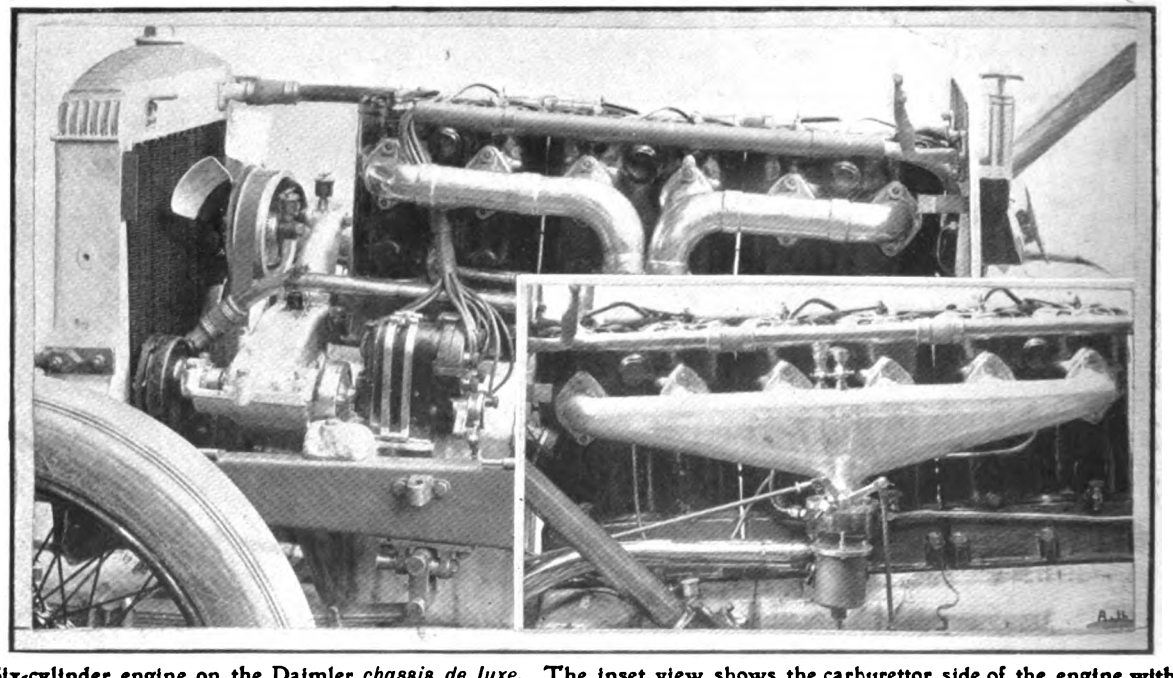
Domed tops are to be the correct thing in limousines, evidently, if six cars that I saw lined up in a queue, outside the gates, waiting like "pittites" at the theatre for the early door, are any index to fashion. This business of getting the cars into the building is quite interesting; they seem to resent it with all the inertia of their thirty hundredweight of metal and woodwork. And no wonder; to be brought through the streets of London in the full light of day on a one-horsed lorry at four miles an hour—what self-respecting motor car would stand for that, and not curl up at the bonnet, do you think?

Talking about bonnets, some people must have been spending sleepless nights lately evolving the lines of the



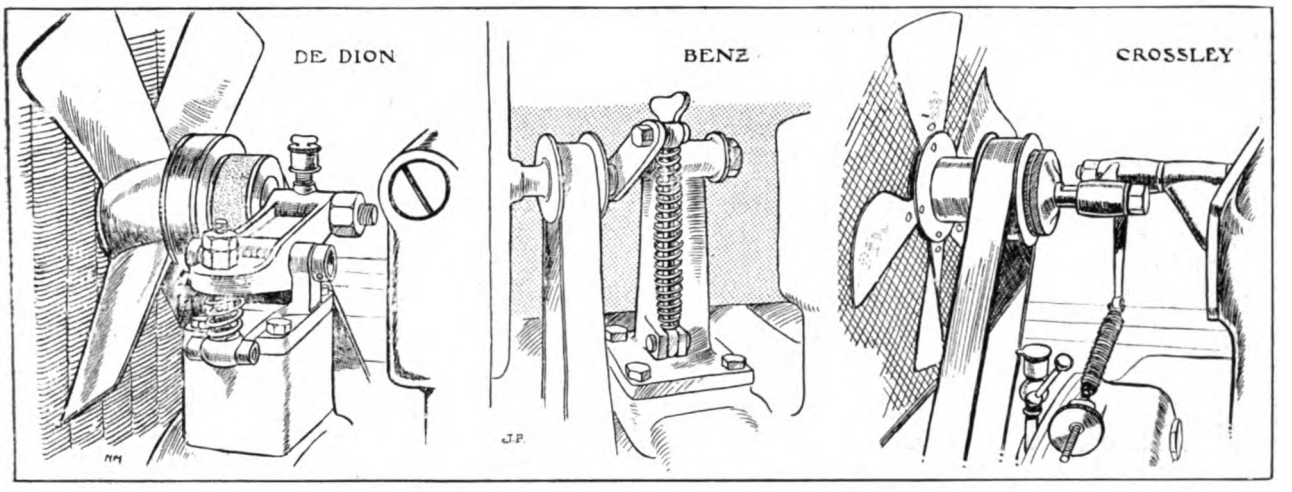
Underhung rear springs are fitted to the latest Daimler models.

modern automobile proboscis. Extraordinary!—positively extraordinary! but the thing that is holding up the whole artistic brain of the motor world—and it has an artistic brain, there is no denying—is how to join the dashboard on to the bonnet. Give the engineer the problem of joining two shafts, and he will make you a perfect job of it in no time; give him a pipe-connection that you want watertight and flexible, and he is less happy, yet successful

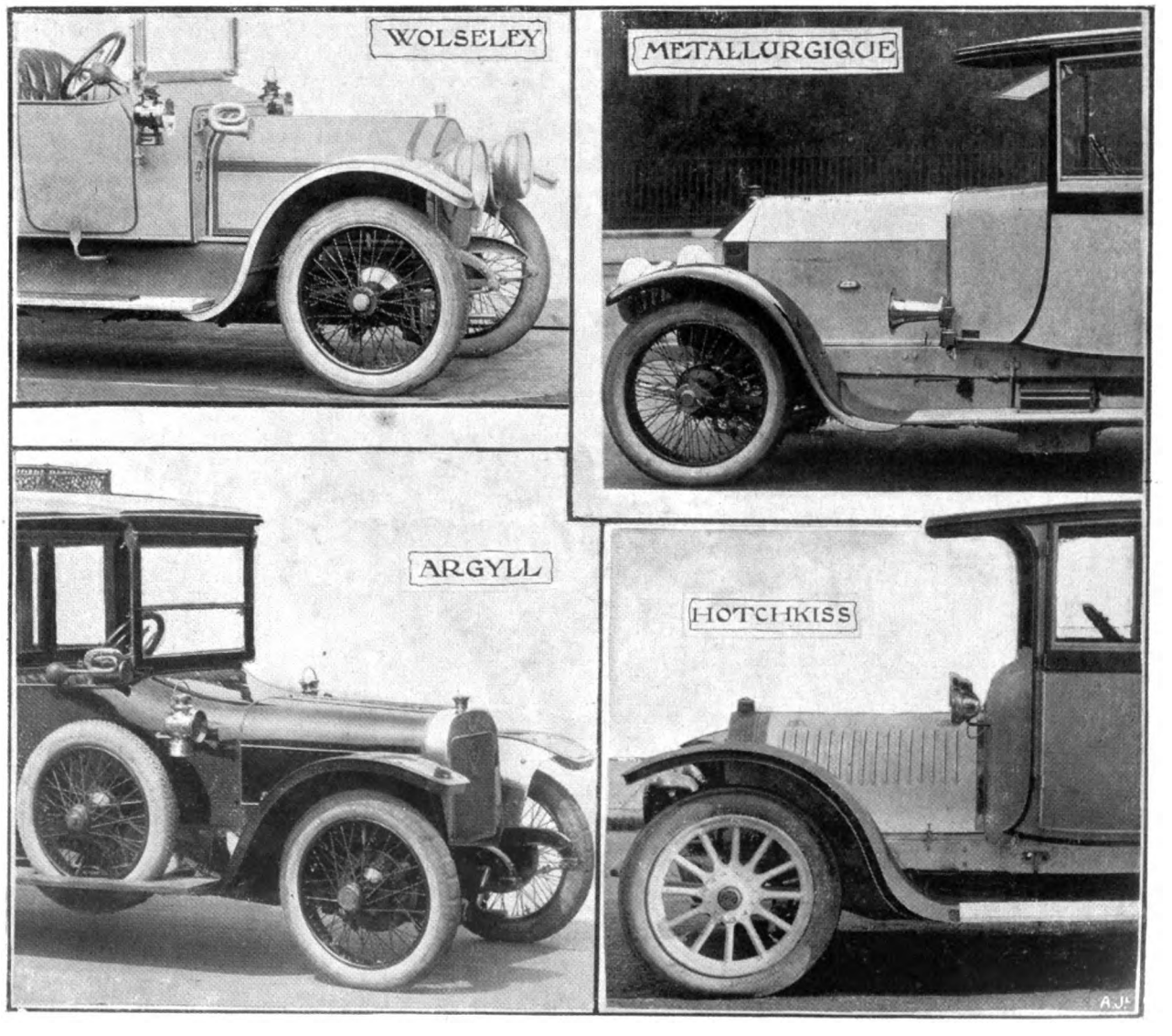


Six-cylinder engine on the Daimler *chassis de luxe*. The inset view shows the carburettor side of the engine with its expanded induction-pipe.

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Methods of Fan Adjustment.—Methods of preventing the fan belt from slipping are varied and often ingenious. The above sketches show three interesting examples on the De Dion, Benz, and Crossley engines.



Dashboard design is a problem that jointly affects the coachbuilder and the engineer. The above illustrations show the solutions of four leading constructors.

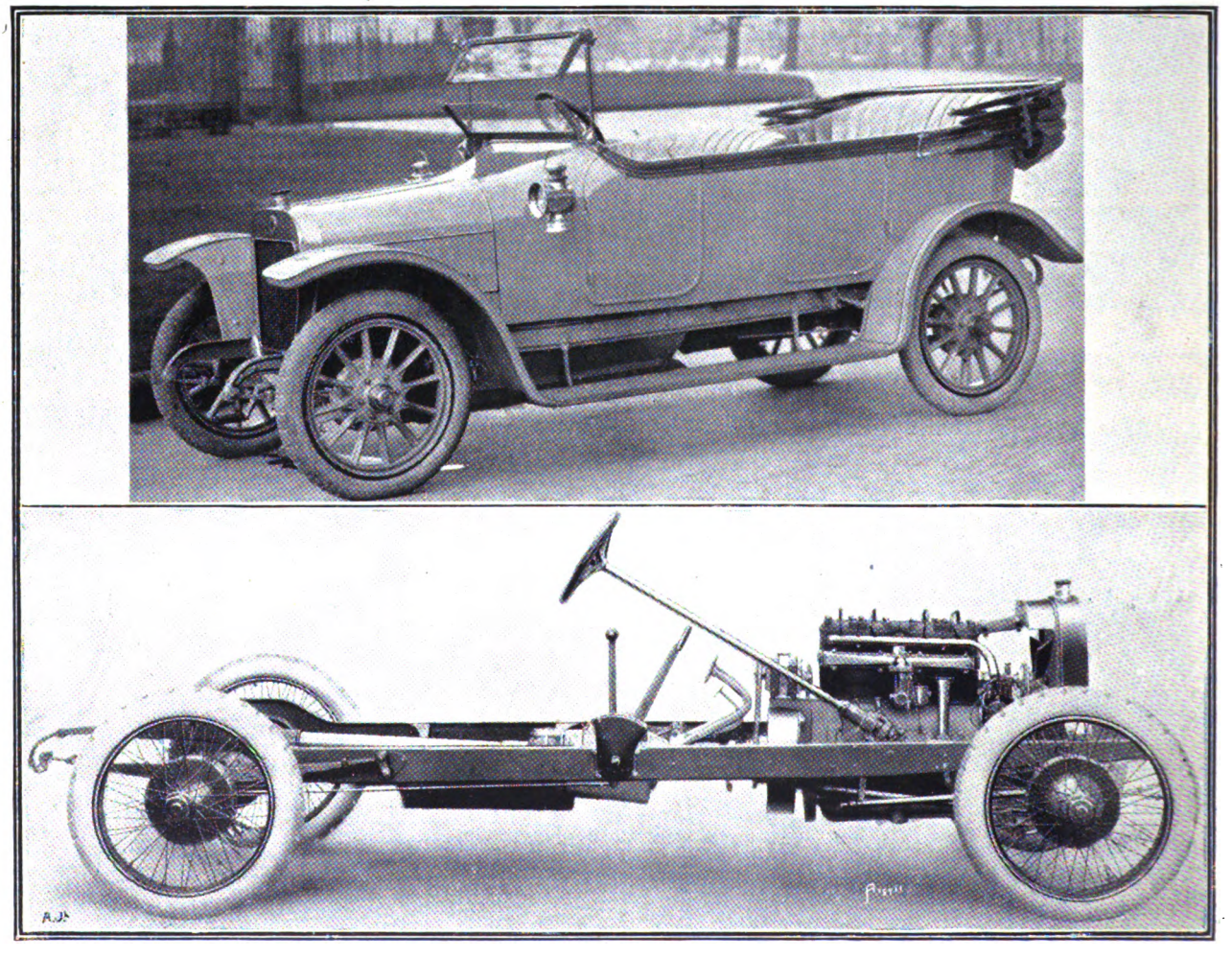
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all the same; but give him a bonnet and a dashboard, and tell him that you want it to look elegant, and he evolves a relationship that is a little suggestive of the ready-made fancy waistcoat that doesn't quite meet the trousers on the waistline. The new idea, it seems, is to have no waist at all; like that excellently utilitarian nether garment much affected by young American children during playtime—the waistcoat and the "pants" are now one. It has been said, with some humour, of the "overall" design in question, however, that "you can't tell whether it's going or coming." The modern one-line bonnet does not possess this advantage; it is quite evidently coming, in the sense of fashion no less than motion. If some of them had less of a penetrating look about them they would conform more nearly to the dictates of good taste, which discountenances a stare as impolite. Others look too devout to be the worldly possessions of plutocrats; there is an air about some of the new bonnets as if the car was on the point of kneeling.

There is a curious weak-kneed sort of impression, too, about a new system of wheel-mounting that I saw on a La Buire car while wandering among the *débris* of stand building. Most interesting, nevertheless, and a good deal of it moreover. The idea in a nutshell, to wit, a hub, is to suspend the front axle from the wheels by links, which allow the axle itself to swing forwards and upwards while the wheel momentarily stays behind as it strikes a brick. A crude description, but it explains the object in view, which is to give a time lag that will deaden the shock of impact on a rough road. Another way of looking at it is to say that it allows the obstacle to check the comparatively small mass of the wheel, while the heavy weight of the car itself continues to go forward.

Mr. Pope, a real engineer, and, as such, an all the more welcome new-comer to the automobile industry, has the invention in hand. His experience with it on the road has led him to anticipate quite a useful future for the scheme on pleasure cars and, more particularly, on heavy vehicles—and he does not seem to be the sort of man who would readily throw dust in his own eyes over a matter of this sort. Constructionally, it works out most neatly, because the ordinary stub axle is often off-set *above* the axle proper on modern cars and its replacement with the new device does not throw the chassis level out of line. In appearance, no one would ever know it was there, unless they were as curious, as I was, to know why the housing-flange behind the hub-caps was larger than usual.

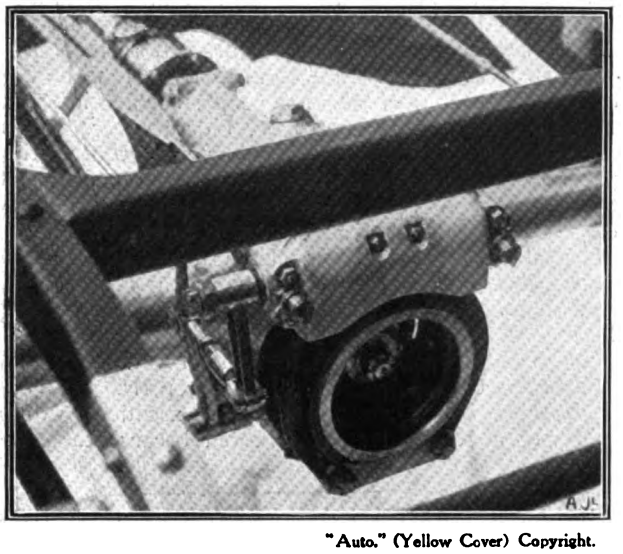
What a lot of interesting things there are on the La Buire cars, by the way; the more one looks at them the more does one realise that it is not necessary to be



The popular Argyll "Fifteen," with its single-sleeve engine of law-suit fame; and, below, side view of the Argyll chassis, which has a unique single-sleeve-valve engine and a unique system of applying the brakes diagonally on front and rear wheels.

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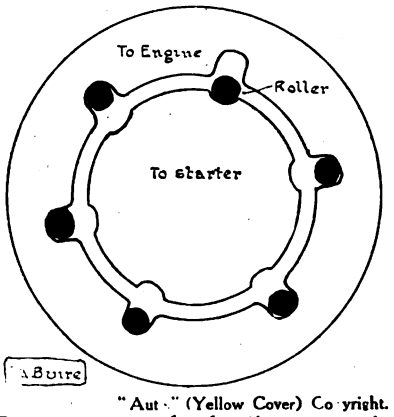
unorthodox to be a freak. Take the back axle, for instance: *on dit*—that is to say the storekeeper of the factory, who has held his job for six years, told Mr. Pope, who was then making independent enquiries—that he had never booked out a single spare bevel or pinion for any chassis since the factory adopted the duplicate drive.



"Auto." (Yellow Cover) Copyright.

An original position for the foot-brake—behind the back axle—on the La Buire car.

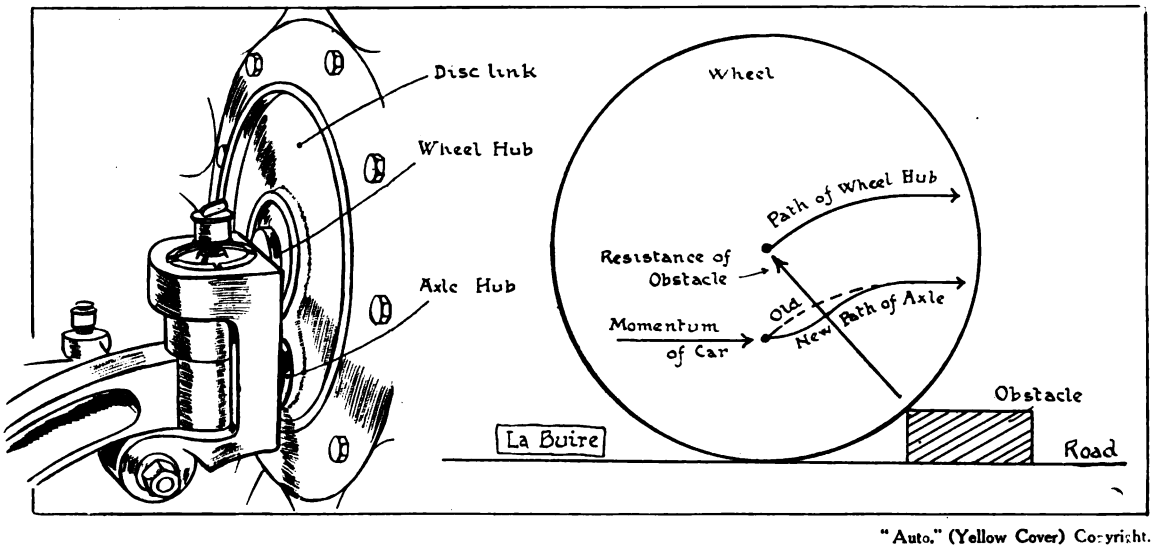
You know that in the La Buire design the propeller-shaft passes clear through the centre of the back axle casing and out at the other side, where, incidentally, it carries the foot brake. This conveys the essential point of distinction between the La Buire system and orthodox design, in which the pinion-shaft stops short just inside the axle casing where it may or may not be completely overhung according to the ingenuity that the designer is able to bring to bear on the problem of providing an adequate toe-bearing in the limited space available and at a profitable price. In consequence of the modification, the differential gear on the La Buire is carried on the propeller-shaft and not in a cage attached to the crown-wheel; it revolves, therefore, about three times the usual speed, and the stress on the parts is correspondingly diminished. Also, and of necessity, there is a crown-wheel on each half of the live-axle in this design, and the crown-wheels share the load of the drive between them, which is also helpful, just as is the fact that the foot-brake behind the gear-box avoids stressing the propeller-shaft throughout its full length. In some of the new models of these cars, too, there is a *demultiplicateur* just where the propeller-shaft enters the axle-casing. This consists of a simple pinion-gear of any convenient ratio that can be fitted on the fixed centres of the two shafts; it serves the double purpose of affording a simple and cheap method of changing the gear-ratio to suit a touring car or a limousine, and also of reducing the disproportion between the size of the bevel pinion and its crown-wheel. This is also useful, because the nearer alike they are in size the easier is it to make them quiet—silence in bevels everyone will agree is a point to run after.



"Auto." (Yellow Cover) Copyright.

Diagrammatic sketch illustrating the clutch on the starting lever of the La Buire car. One or more of the rollers at the top automatically engaged when at rest, but directly the engine is in motion they fly outwards under centrifugal force.

A wonderfully interesting thing is this subject of gearing, for it represents one of those instances in engineering where the machinery is, so to speak, running away from the maker. With all the perfection of modern methods of manufacture which already regard dimensions so small as a one hundredth part of an inch as coarse, it



"Auto." (Yellow Cover) Copyright.

SKETCH AND DIAGRAM OF THE FLOATING FRONT AXLE ON THE LA BUIRE CAR.—The sketch illustrates the appearance of the new hub, and the diagram shows the theory of its shock-damping qualities. The dotted line illustrates the sudden rise of the front of the car when the wheel strikes an obstacle, the new path of the axle shows the slow rise due to the axle swinging forward on its disc link.

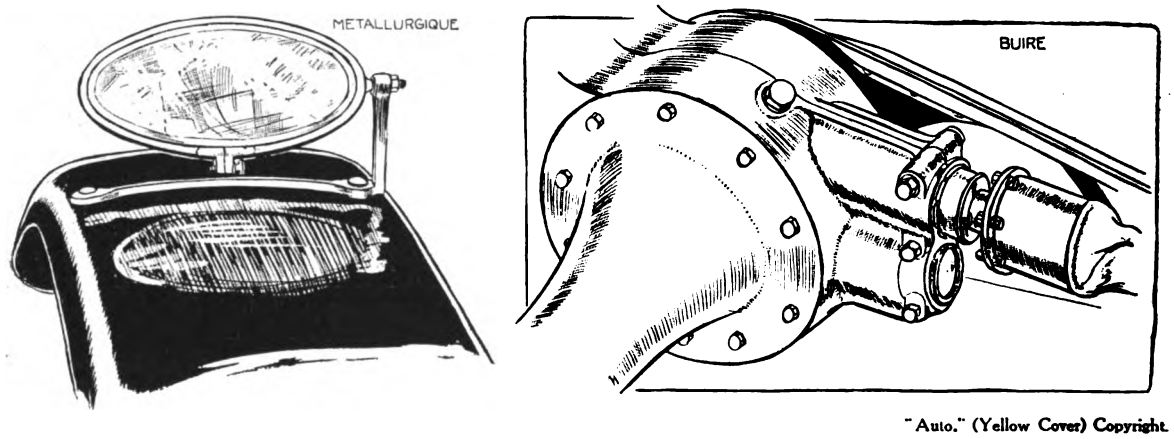
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is a persistent difficulty to get two wheels to mesh so that they will not make a noise. The inaccuracy is finer than the most refined measurements will detect, and the engineer has to rack his brains for fundamental principles that will automatically produce more perfect results while he continues merely to do his best. He studies his machinery and he comes to the conclusion that this or that part might conceivably spring a little in operation; he argues that if you grind two opposite faces of a gear-tooth simultaneously you will be more dead accurate than if you only grind one face at a time, because the object cannot recede from the face of the tool. It is hair-splitting, but it is what we have come to in automobile engineering, and many firms in this country are very soon going to pay a new company that is laying down American machinery in Birmingham as much as three-halfpence a tooth or thereabouts to have their gear-wheels rectified by some such very process as I have roughly described.

But I am not wandering as I intended; truth to tell the La Buire stand was one of the few uncovered, and it was very interesting. Most of the other chassis at that time looked as if they were in hospital, swathed from spokes to steering-wheel in bandages. Cars in every direction seemed to be sleeping soundly under their white sheets, and the "nurses" in attendance resented any too close approach as an impropriety. They would wake up soon, no doubt, and show themselves in all their painted beauty; meantime I had not finished with Mr. Pope, or rather he hadn't finished with me. There was a mechanical starter, it appeared, on another La Buire car that it was worth while to see, a simple little thing, just a lever where the brake might be, outside the body, which pulls a steel cord, and gives the crank-shaft a turn by means of a ratchet device in front, where the starting-handle is usually. The point of the device is the clutch, which frees itself even if the engine *backfires*. Backfiring is something not everyone who designs a starting apparatus remembers to provide against, yet obviously it is necessary. The clutch in question is very ingenious, very simple, and is said to work so long as you *don't* oil it. For that alone it should find favour—something on a motor car that doesn't require oil! It sounds almost too wonderful to be true. If one looked at the mere design of the device, one would be diffident about expressing an opinion as to whether it would work in the way desired, or the opposite; the facts of the case are thus instructive as well as interesting, for it is how things do work, not how they are expected to work, that distinguishes engineering from invention and the inventor from the engineer. Here you have a set of rollers in radial grooves in a ring, which fly outwards under the centrifugal force of rotation. When at rest, one or more of those uppermost fall down into corresponding shallow grooves in the periphery of the internal disc portion of the clutch, and so jam the two portions temporarily together while the starting-lever is used to give the crank-shaft a jerk.

Self-starters, in the phrase of the scribe, are to be the *clou* of the Exhibition, but some people may find in them nails of another sort before long, I dare wager. As I walked past the Crossley stand they were tearing the paper off a wedding-cake-like object that turned out to be an engine mounted on a special stand in order to display the beauties of an electric starting equipment, designed by Laurence Scott, electrical engineer. At a glance, it had this merit: that it was worthy of the name equipment. What other devices of the sort may be like I have yet to discover; this at least had been designed into the engine, and, if it is capable of working at all, it has every chance of doing its work properly. Many a good thing fails through indifferent execution; other things of no especial merit work well because they are properly put into effect. The Crossley may be good, bad, or indifferent as a system, but it has been well done as an engineering job, which in itself would give confidence in the arrangement as a whole, even if it were necessary to evade doubt about an object appearing under such an ægis. Crossley's have too much at stake to do the wrong thing, they have put themselves in the front rank by sheer merit apart from the name, and while they are already doing their best to get their cars a bonnet's length ahead in the race for commercial supremacy, they know better than to drive on slippery ground in order to make the wheels go faster.

In this Crossley system, the dynamo is mounted permanently on the engine and is properly driven by an enclosed chain. When "shunt connected," to use an electrical term implying nothing in particular to the motorist, it charges a battery of accumulators that provide current for the electric lamps. Connected in series, by the movement of the lever on the dash, it becomes an electric motor working under the impetus of the battery current and starting the engine through a 20 : 1 ratio epicyclic gear, which is thrown into action by the same movement of the lever. The gear is the feature of the device, it interposes itself between the dynamo-shaft and



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How a mirror is arranged on the mudguard of the Metallurgique. On the right is the La Buire gear reduction, just in front of the back axle casing.

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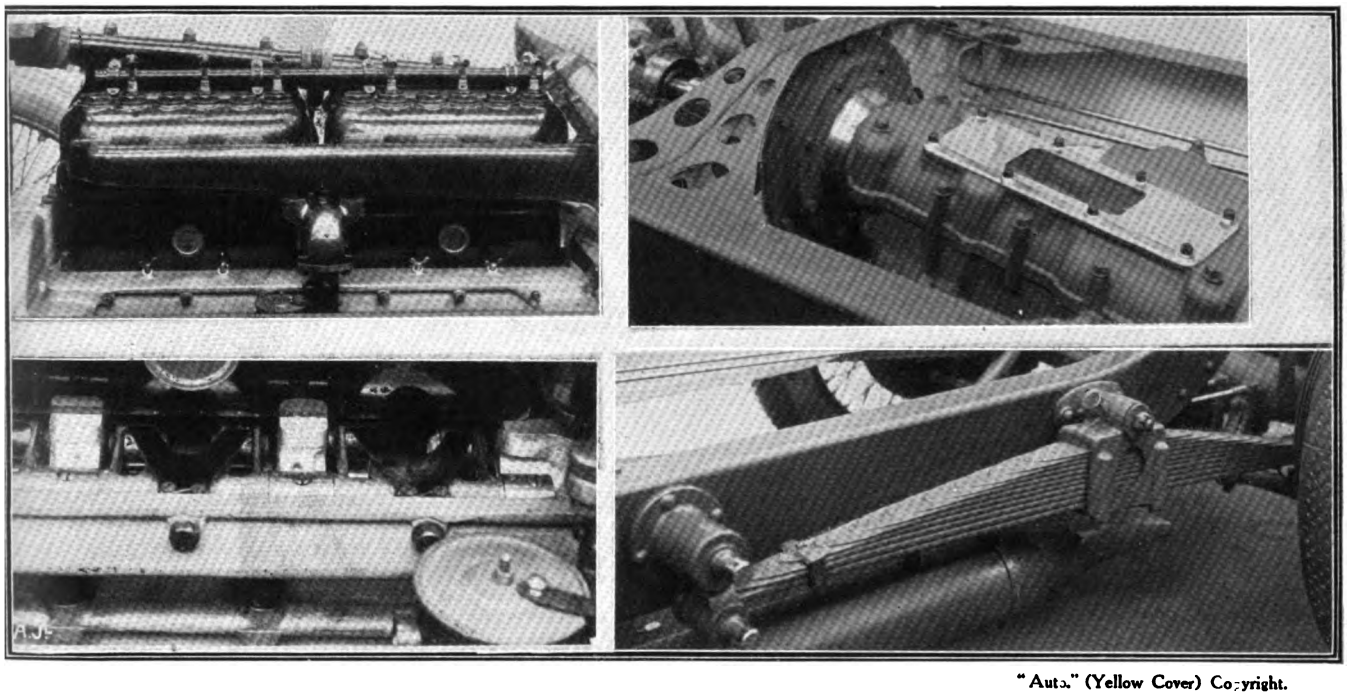
the same chain that is used by the engine to drive that same dynamo-shaft. The gear remains out of action altogether while the engine is working. A backfire also throws the gear out of action by slipping the clutch, which is of the band brake type commonly used in epicyclic mechanisms. When the engine starts properly, it picks up its drive of the dynamo by over-running a free wheel-clutch. The makers are jubilant about it, let us hope the user will be equally pleased. It is most ingenious and it is well made, a purchaser can't ask for more at the Show. What struck me most about it was the fact that the gear device of starting the motor only added about fifteen pounds on to the weight of the dynamos for lighting the lamps.

Personally, I am all for not having to swing the handle by hand, and by all accounts self-starting devices never fail if the engine is really in starting trim. On the Crossley stand, they told me that the apparatus would keep the engine turning at 80 revs. a minute or so for long enough to do the trick if anything was capable of doing it at all. Never to my recollection have I timed myself while winding the starting-handle of an engine, but I should imagine that five revolutions in less than five seconds would be an effort I should not care often to repeat. When it comes to keeping up the strain I would willingly say "after you" to any sort of power-driven starter that will take on the job. The question arises in my mind, all the same, as to whether the necessity for continuity of effort is not of itself an admission of weakness. Engines *will* start on a single turn of the handle; why not always instead of sometimes. Recollections of personal experiences, notably a protracted attempt from midnight to 1 a.m. to start a huge 6-cylinder with a leaky compression cock or two, have convinced me that effort is wasted in turning the starting-crank indefinitely.

What does turning the crank accomplish? It inspires a sufficiency of petrol to enter the cylinders, and it urges the magneto to spark. The latter is purely a question of speed and timing, the former of speed and throttle openings. Is the self-starter to be an excuse for fitting indifferent carburettors or sluggish magnetos? Let us hope not. One of the most useful accessories that I ever found on a car was on a low-priced American production, which had a small pump on the dash for injecting a little petrol directly into the cylinders. There was never any difficulty about starting that car by hand.

But all these are minor details compared with the all-important question of weight. Modern cars are becoming far too heavy; chassis that used to weigh a ton now turn the scale at thirty hundredweight or nearly, and all down the scale there is the same proportionate increase. First, it was an increase in the length of the wheelbase, than which nothing is more conducive to comfort; then the longer wheelbase facilitated more commodious bodies in which the owners accommodated their friends. Such coachwork rapidly became heavier and more luxurious, and with its interior completeness came the desire to acquire the same refinement in other details of the car. Spare wheels are carried in order to save mending a puncture; from spare wheels it is not a great step to dynamos for electric lighting; and from dynamos it is a natural evolution to add self-starters, to save trouble in winding the engine.

All this is very proper in its way; but every pound added costs the motorist more on his tyre bill, and also it prevents the price of the car going down. These new



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The accessibility of the cam-shaft mechanism on the Sheffield-Simplex chassis is well illustrated above on the left. The lower view shows the interior after the casing over the cam-shaft has been removed. The position of the lower view can be identified by the carburettor, which is visible in both cases. On the right at the top is seen the new position of the new four-speed gear-box on the Sheffield-Simplex chassis. The gear-box forms the upper end of the tubular propeller-shaft casing, and is supported in a massive spherical trunnion in the centre of the transverse bridge across the main frame. Below is the Lanchester type suspension on the latest Sheffield-Simplex chassis. The advantage of this system is that it takes the weight of the spring off the back axle, and also allows more deflection.

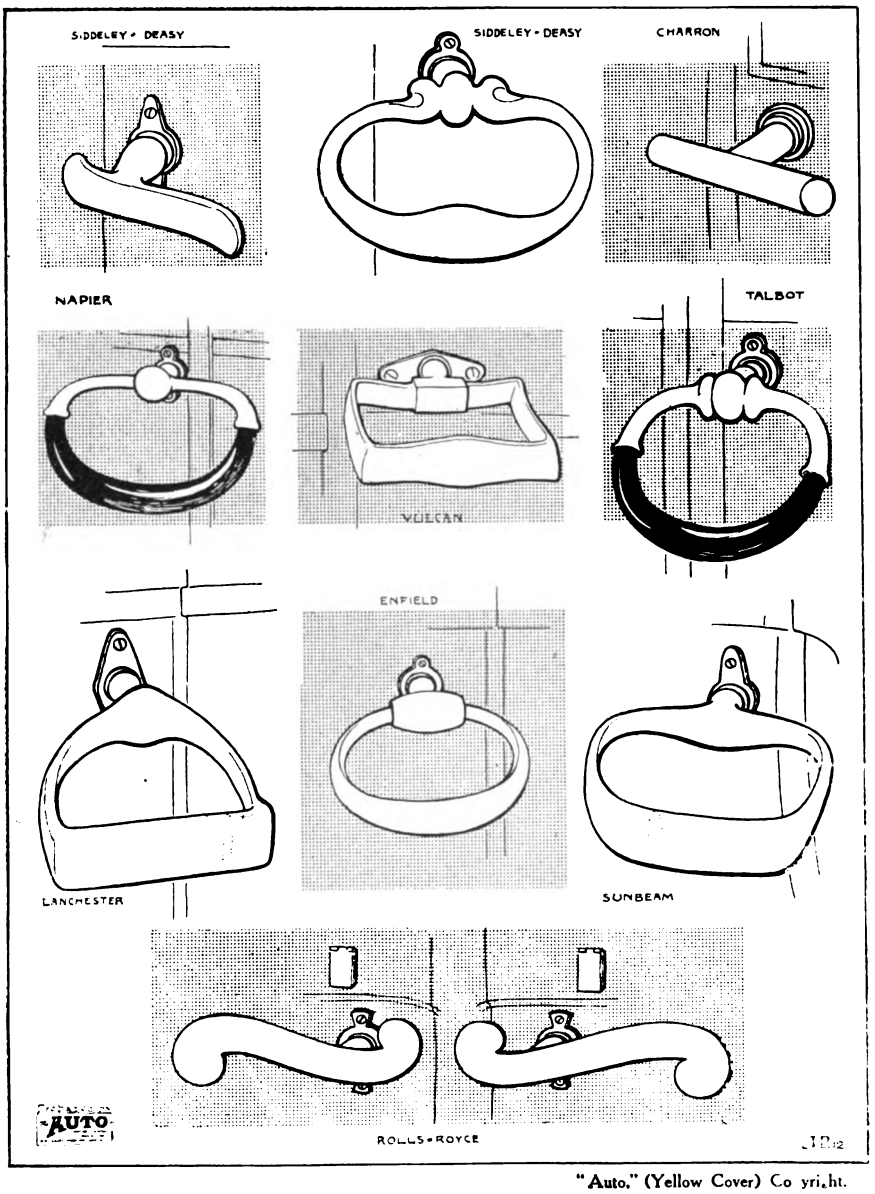
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cycle cars that are to be the feature of the ensuing Exhibition will succeed in proportion to their lightness; the car in miniature with the full-length upkeep bill will have no sale among erstwhile motor cyclists, who are brought up to goodness knows how many miles to the gallon of petrol, and tyres that only cost a fraction of the price a motorist has to pay for his covers.

Well, difficulties are always useful, as they make the mind active in the effort to progress. Lightness and strength in automobile construction involve a serious study—Metallurgy. It was in the realm of metallurgical science that the motor car was born, and it is on the still more minute investigation of the structure of metals that its future very largely depends. All the talk about special steels is very interesting—what the automobile engineer requires is a little less speciality and a great deal more uniformity in the commercial product. This was an aspect of the situation that the Daimler Co. saw very clearly several years ago, when they laid the foundations of their metallurgical department, which has now become one of the best equipped and most scientifically conducted in the world. And the problems it has to tackle pass belief; yet you can almost believe anything of a piece of steel that can possess qualities so widely different as the brittleness of a common carrot and the bendableness of a piece of india-rubber. You cannot see all this in the finished chassis, of course, but the problem is there all the same.

Incidentally, the Daimler Co. are among the section of the *élite* who do not show the chassis unadorned on their Olympia stand. Just a few very fine specimens of quiet motor carriages in perfect taste, that is all there is to see. Good taste in automobile coachwork is a thing of high value, though, and the Daimler Co. just now are encouraging it in the proper way by giving their customers facilities to make up their own specifications to detailed price lists, instead of offering them a selection of designs at a *prix fixe*. For my own part, I would go for a dark exterior every time, and confine my individual ideas in lighter colouring rigorously to the interior. Why the firm of S. F. Edge, Ltd., do not show an example of their standard Napier Green I cannot imagine; it is quite one of the most serviceable shades, is a paint that can be made of the first quality without being expensive, and it is always quiet. They have a very perfect specimen of a fancy coachwork in a large limousine finished in satin-wood, with the exterior painted yellow and black, and another open touring car painted in "bronze" with a pigment that looks like a mixture of finely-ground copper. A Napier "fifteen," with a really well-made Cunard body, is not improved, in my opinion, by its zebra-like stripes *fore and aft*, but as a *type* of serviceable landaulette within the reach of anyone whose ideas, although moderate, refuse to consider less than the best, it is a car that no visitor should miss. There is no chassis on the Napier stand, nor is there one on the Rolls-Royce exhibit, where a limousine serves to display the extraordinary grace of these remarkable cars. If you would appreciate the touch artistic, go and look at the door-handles on this car; just simple door-handles, a pair of them in silver, close together—they are the whole exterior decoration of the car, and they are enough.

The absence of chassis elsewhere, left more time to ponder over the innumerable interests of the new Sheffield-Simplex, which was derelict in a gangway when I first discovered it in my wanderings. A fine piece of



"Auto," (Yellow Cover) Co yri.ht.

STUDIES IN DOOR-HANDLES.—A well-made door-handle puts a real finish on good coachwork, but not all those to be seen at Olympia have the quality of smartness. The best effect of any to be seen at the Show is that produced by the pair of silver handles close together on one of the Rolls-Royce cars, but doubtless different people have different ideas, and the prospective purchaser may find the above sketches a useful guide in this connection.

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work truly: different from its prototypes, but with just the same individuality of character in its design, For the sake of popular prejudice, it now has four speeds and a worm-drive. The gear-box now forms the *front* end of the massive tubular torque-stay that is supported by a large ball-socket trunnion, and the cross-bridge of the frame has been doubled to carry the extra weight. In the engine, the oblique worm-drive, which the makers had taken such pains to make a good mechanical job, with success, has given place to a chain drive, and, in consequence, the magneto has left its very original and very accessible tilted position behind the radiator for a more sedate attitude alongside the engine.

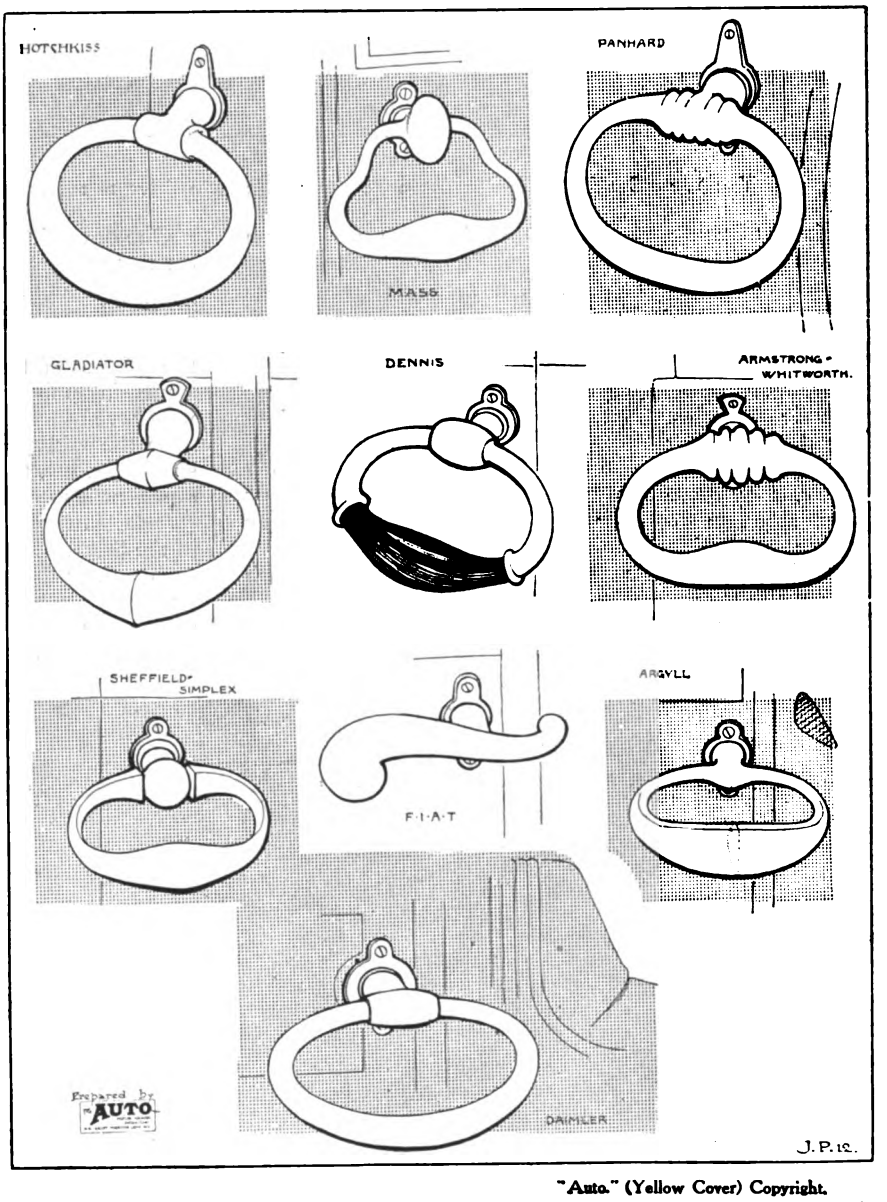
It is quite instructive, this unvoiced prejudice of the public, which is collectively unconscious of the power it wields in these matters. Novelty and originality are good things, but the moment they invade the unorthodox the manufacturer must beware lest they become uncommercial. The Sheffield-Simplex chassis is not less original than it was, but it is less unorthodox, and for that reason it will probably appeal to the public as a "safer" purchase. No one can look at the chassis and not admire; the point that matters at the motor show, however, is whether the admiration is backed by a signature on a cheque.

To-morrow, well to-morrow is the first day of the cheques, and in the meantime the only available tea-room in Olympia has been commandeered by the new managing director of S. F. Edge, Ltd.—Mr. H. T. Vane—for the entertainment of his friends; yes, decidedly this is the time to remind him of our friendship.

Friday.

Where does the crowd come from so early in the morning? That, and the magical disappearance of yesterday's *débris* are, to my mind, the two outstanding features of the opening day of each successive Olympia Show. Nothing but an occasional flash of unexpected light, accompanied by a short, sharp report, reminds us that the electrician is not yet departed. For the rest, the hand of the labourer is silent, as silent as the telephone that H.M. Post Office contracted to fix last Tuesday, which was born deaf-mute.

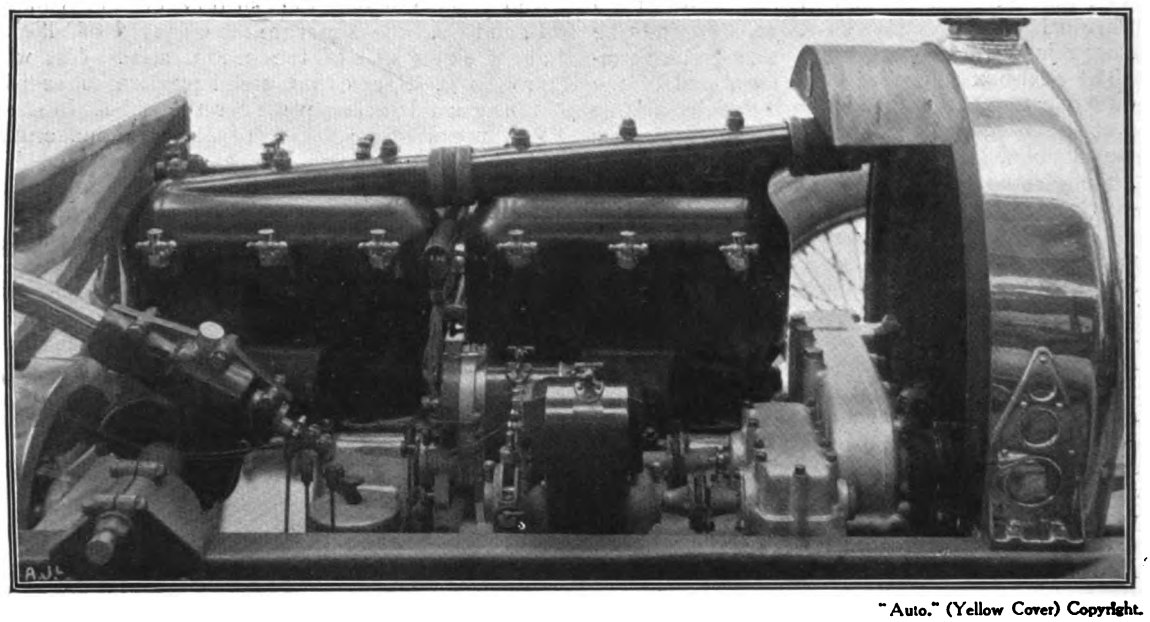
If, being possessed of the humble shilling, you are above the necessity of showing strategy or permit to pass the vigilant Peter, whose name was Robert when he last requested to see your card, you will enter by the aristocratic turnstile and find yourself anon in that portion of the main hall where are congregated the lucky few of the first ballot. If you have ever stopped to think about it at all, you will surely have wondered how the S.M.M.T. keep the peace between A. and Co., who drowse under the shadow of the gallery, and B. and Co., whose cars are the observed of all observers along either side of the central aisle. Just what the process is, it serves no useful purpose to explain, but it insures a first-class place for the old-established firms that supported the Society of Motor Manufacturers and Traders by membership in its younger days. There is not always peace, naturally, and doubtless the machinery works erratically in some cases. Yesterday, in my wanderings, I found those excellent sportsmen, who run Vinot and Gladiator cars in this country in high dudgeon at being refused transference from associate membership to full membership on the score of insufficiency of capital. Evidently a slight misunderstanding somewhere, I should imagine, seeing that since Mr. Gordon Usmar and Mr. H. Ramoisy joined forces at the back of the firm they have brought their



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MORE STUDIES IN DOOR-HANDLES.—The above sketches, together with those on the opposite page, form an almost complete study of the door-handles at Olympia, practically every car being fitted with one or other of the different types illustrated. Some of the models are, however, exclusive to the firms in question. Usually the finish is in brass or nickel, but some have ebonite parts, and a few are oxidised.

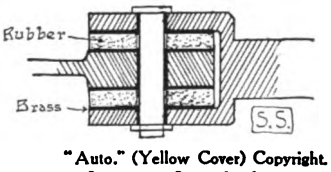
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"Auto." (Yellow Cover) Copyright.

The latest Sheffield-Simplex engine, showing the twin drive to the magneto and the lighting dynamo.

business to a turnover exceeding £100,000 per annum with a five figure profit and a small private fortune for themselves into the bargain. Vinot and Gladiator, which are as Castor and Pollux among chassis, have proved very marketable articles. Good value for money as a purchase, they have maintained an enviable reputation for reliability in service, and taxi-cab work at that, which has made the courtesy of the "working directors" towards their customers an irresistible impulse towards business.

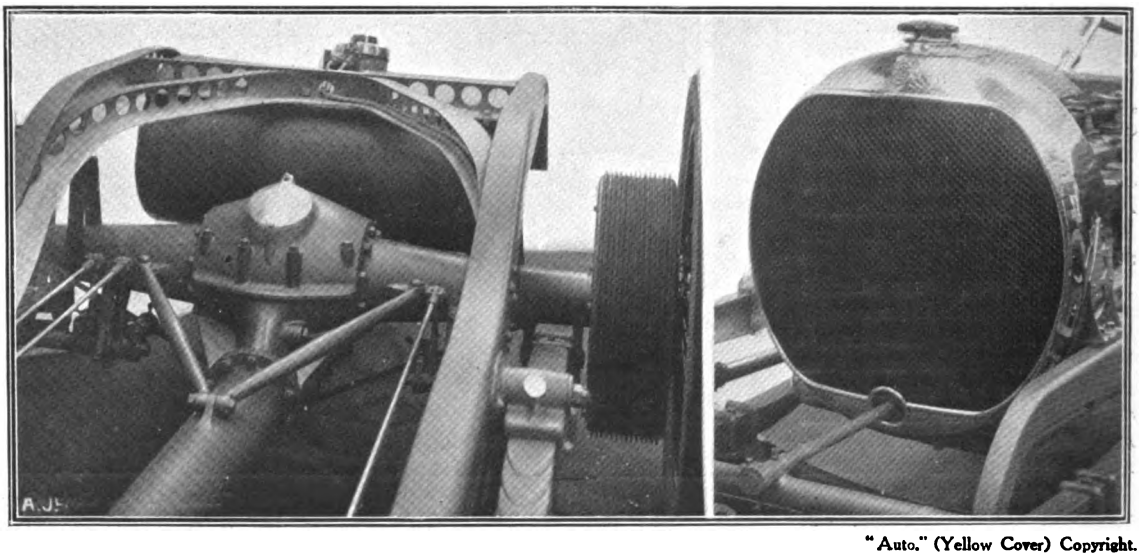


"Auto." (Yellow Cover) Copyright.

A rust-proof joint for forked lever knuckles on the Sheffield-Simplex chassis.

One of the lucky ones this year is N.E.C., who have a car that employs every inch of its length for passenger accommodation. Width in side-doors and roominess in the interior are carried to a far point in N.E.C. design, which has no part of the body behind the axle. This and the softness of the springs make the N.E.C. suspension something unique—quite an experience, in fact, for those who have never tried it.

In the midst of a Show that has self-starters for its special feature, the N.E.C. starting handle on the *dash-board* stands out with a significance that formerly it may have failed to possess. There is a special interest, too, in the Sheffield-Simplex starting-handle, which hinges on the crank so that it fits more snugly in its leather holder, but it is suggestive of ultra refinement, for it is not to be supposed that there is any utility in the extra *leverage* that the alternative position of the handle might afford



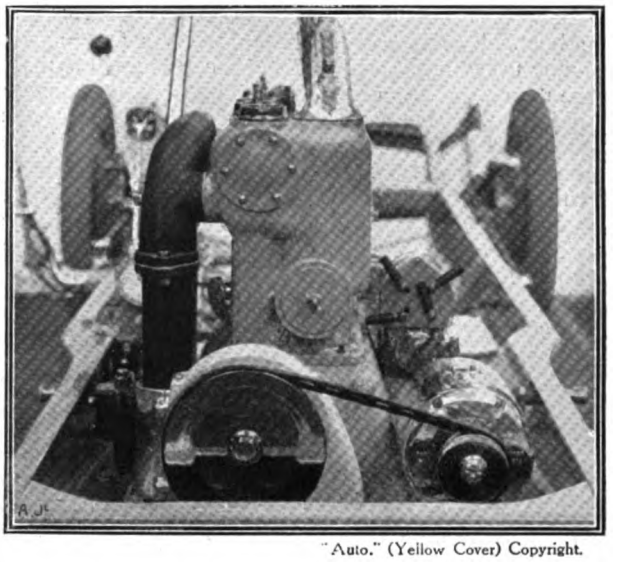
"Auto." (Yellow Cover) Copyright.

The new back axle and the new radiator on the latest Sheffield-Simplex chassis; the back axle is worm driven. Note the width of the double brake-drums, also the cooling ribs. The frame is pierced for lightness, and also to maintain a draught so as to keep dust from collecting round the petrol tank.

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In the days of the Gordon-Bennett Race, when cars with enormous engines roared out their fulness of life, it was not altogether unusual to see a mechanic labouring at the end of a three-foot lever, in order to force the pistons over their compression. The modern touring car, however, scarcely comes to this pass, even at its worst.

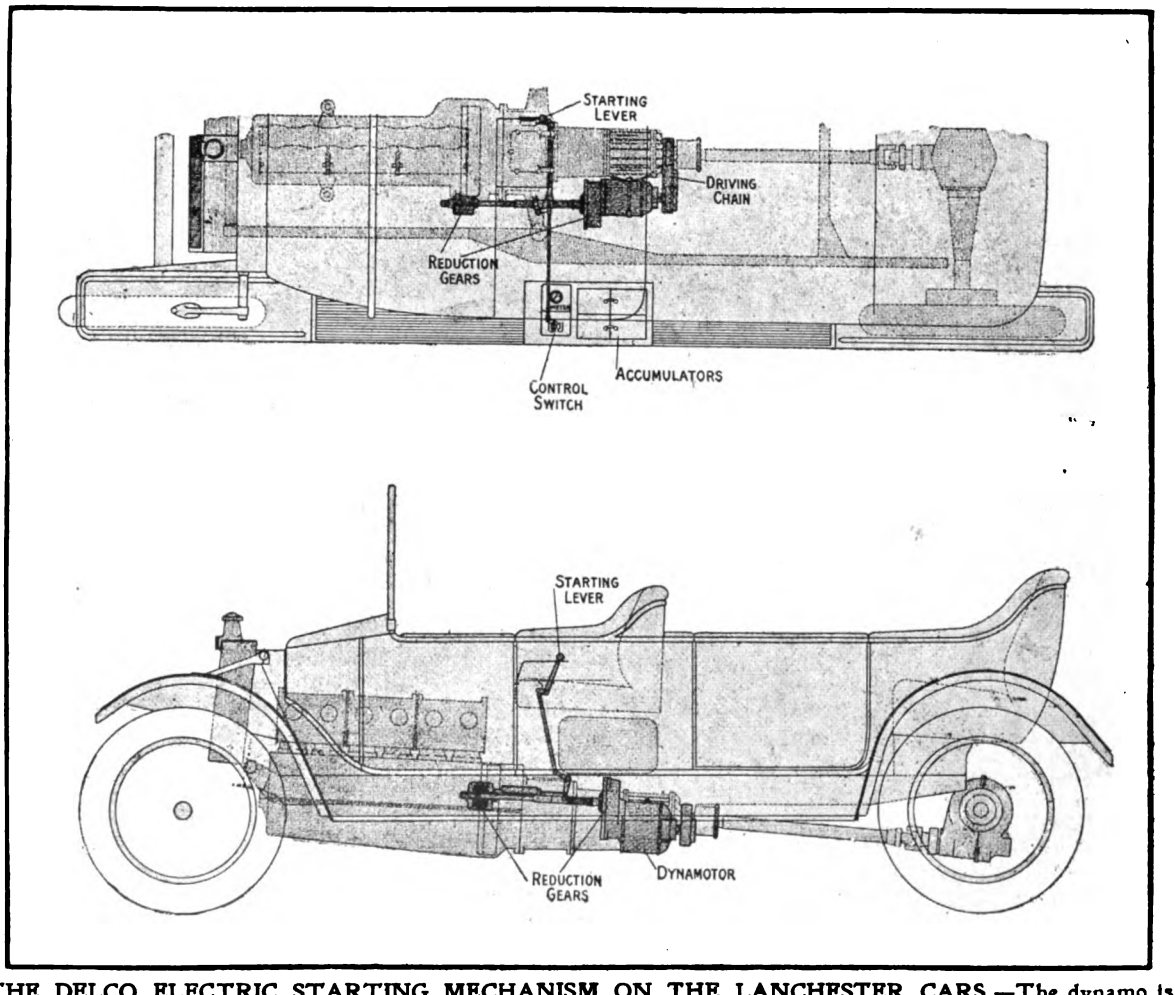
Just as all firms who are in the Show cannot be accommodated along the main aisles, so is it impossible to find room for all the firms in the motor industry within Olympia's walls, notwithstanding the fact that the space apportioned to each firm seems smaller than ever. The restrictions of room make it a serious problem as to what to show, and the superior attractions of coachwork as a "selling point" every year make the stripped chassis fewer in number. Certainly the *car de luxe* of the day is a fascinating thing to see, especially when you witness such an example of it as is shown on the Metallurgique stand, where Van den Plas these last few years has proclaimed himself the foremost coachbuilder of the world, but seems to have changed his lines this year without advantage. This particular vehicle has every conceivable equipment for touring. Cupboards behind the armchair seats contain picnic utensils, and there is a miniature escritoire with pens and paper for writing. Its accommodation in respect to persons is limited to two—it is, in fact, what might appropriately be described as a millionaire's honeymoon car.



"Auto." (Yellow Cover) Copyright.

Front view of the Arrol-Johnston chassis, showing the engine and the belt drive to the dynamo.

A feature of more general interest about this superb piece of coachwork—and the quality of the work is adequately described by no lesser word—is the hinging



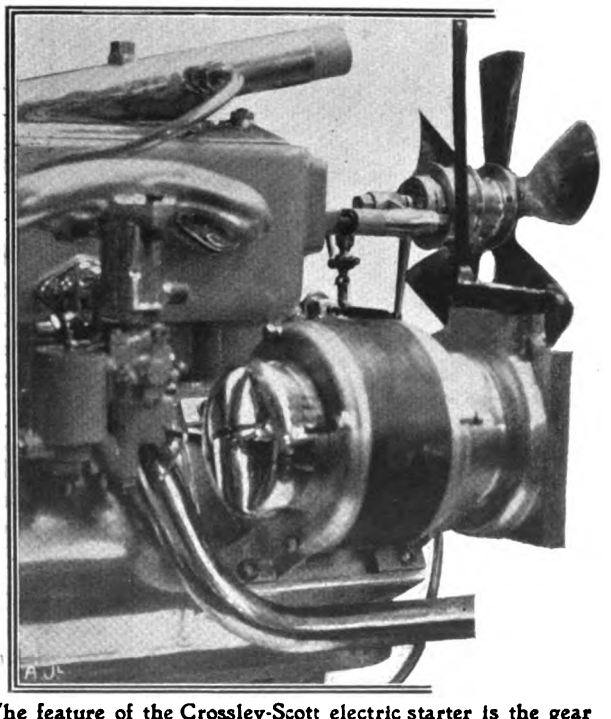
THE DELCO ELECTRIC STARTING MECHANISM ON THE LANCHESTER CARS.—The dynamo is chain-driven from behind the gear-box, and the engine is started through a reduction mechanism. The dynamo is available for electric lighting.

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of the whole of the back panel, so as to give access to the boot. The narrow orifice that serves as the only opening to the hold-all behind some cars is too often no more than a trap to prevent the replacement or extraction of objects for which the space is intended as a receptacle; a hinged back panel, in fine, is an idea that might be copied with advantage.

In any case, the back of the car needs more attention, and is receiving it in many instances where luggage carriers are properly fitted instead of being merely put on as an afterthought. When one goes touring by road, it is a little ridiculous that one's clothes should have to do the journey by rail, yet there is small room for luggage on most cars unless it occupies the leg room between the front and the rear seats. This is where a suit case is generally carried, and the firms who cover the front seat panels with fabric, show a practical appreciation of actual circumstances that is a credit to their commonsense. That, and a rug rail, are two fittings that any open touring car should possess, and if, in addition, the step and the body were fitted with strap rings it would be possible to carry another couple of large suit cases without recourse to a rear luggage carrier at all. It is inconceivable to me why no one has exhibited a car neatly packed with four reasonable bags, such as most ordinary people use, instead of the wonderfully intricate boxes that are so interesting to look at, but which would be taken straight off to the stock room for samples if they happened to come in the hands of the hall porter of any commercial hotel.

Speaking generally, I increase the pace when I wander into the annexe, where the coachbuilders exhibit under their own names. There is seldom as much to attract attention there as in the main hall, where many of the same makers display their work without getting the credit for it. One of the first stands I saw there, on the border line where a brick wall used to turn the annexe into an outhouse, was that of Theo Masui, who makes a speciality of really comfortable seat-cushions when he can persuade customers that comfort is of more consequence than a tool-box. It is false economy to sit on the top of the breakdown outfit, when the extra inches occupied by the spanners and oil-cans might be used for the extension of the springs in the cushions. In a short wheelbase car, I know of nothing that makes a greater improvement on the suspension than the use of well-made, deep, spring seat-cushions like those that Theo Masui turns out so well.



The feature of the Crossley-Scott electric starter is the gear which is contained in the box on the right of the dynamo, and only adds 15 lbs. weight to the dynamo lighting equipment. It introduces a 20:1 reduction between the dynamo and the engine for starting purposes only.

On some stands the coachwork lacks beauty, on others it is the essence of refinement. Messrs. Barkers, who make many of the Rolls-Royce bodies, are a firm who do as well as anyone in England, and rather better than most: in any case, I cannot remember them ever having made a mistake. This is much to their credit, for a "mistake" in automobile coachwork is an everlasting eyesore to someone. There is a car in the annexe, for instance, that has half-a-dozen or more polished brass knobs on its side that blink at one in a leering kind of way that is most offensive. Brass work on cars is already far too suggestive of fire-engine practice to warrant any unnecessary profusion of the metal on hinge-joints and other odd places where it may serve to hide an indifference in workmanship.

Hinges, by the way, are quite a problem in carriage construction, for it is difficult to know how to obtain a happy combination of the effects desired. There is a car on Messrs. Maythorne's stand that is an illustration in point—it has hinges that are at once the strongest and the most useful and the ugliest I have ever seen. They are massive in order to be strong, and they protrude in order to be useful for the purpose of throwing the door clear of the mudguard. They are ugly because they are just hinges; it seems to have occurred to no one that they might have been made artistic. Consider the door-handles on the Rolls-Royce car, mentioned a while back; they are not mere door-handles only, they are things of beauty, too. Yet Maythorne's build bodies second to none in England, and another car on their stand is a picture.

By the way, there is a speciality in hinges that is doing rather well just now, which is the production of Mr. Macdonald, of S. F. Edge, Ltd., who is an inventor of the useful sort. It is a hinge mounted on springs that prevents the door from rattling—to do which is an accomplishment worth while. Messrs. Cockshoot, of Manchester, has a very fine body in the Annexe, and they, too, are among British constructors who are "safe." For a first-rate moderate-priced body, it is hard to beat Messrs. Brown, Hughes, and Strachan, and to them, too, is the credit of having devised something useful, and of good appearance, in the way of cab dashboards, in the days before torpedo bodies became all the rage.

When it comes to luxury coachwork, with delicately upholstered interiors, the necessity of keeping the grimy hands of the chauffeur-at-work off the carpets and cushions is a matter that concerns the chassis engineer. Looking at the Arrol-Johnston chassis, as I wandered back to the main hall, the significance of their unit construction in this connection forced itself home to my mind. They have engine and gear-box close together, and the latter is accessible by raising the front floor boards. Beneath the carriage work proper there is nothing but the enclosed propeller-shaft, a great length of it incidentally, but still nothing to require either inspection or repair. One may lock the doors of the Arrol-Johnston landaulette or limousine, therefore, and leave it secure against

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unwarranted intrusion without thereby sowing the seeds of excuse for a gear-box that afterwards may fail through lack of attention. It is a point worthy of notice, this question of the whereabouts of the trap door that gives access to the parts that need oiling. Not every car, bear in mind, has detachable upholstery, like the new B.S.A., to be changed from stock if a piece of it is spoiled. This car is worthy of inclusion in the cream of what is technically interesting, just as it is worthy of the notice of anyone who is on the lookout for a moderate priced machine. The new B.S.A. all-steel body is a remarkable piece of work, but as this can only be appreciated by personal inspection, any attempt to describe it would be wasted. What is most remarkable about it is the unexpectedly good appearance resulting from this method of construction.

The crowd grows thicker, my wanderings have degenerated into a crawl; no one has a tea party this afternoon except the public; so it is time, I think, that I gave the Show a rest.

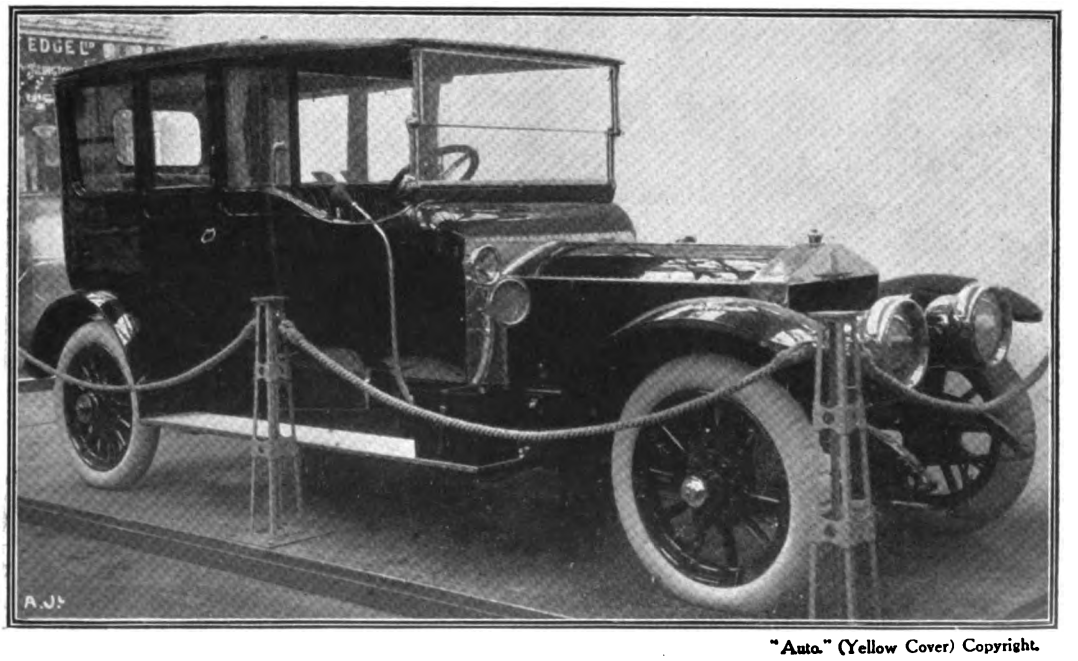
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OLYMPIA, AS SEEN BY A CHAUFFEUR.

MY first visit to the great Motor Show at Olympia, I readily admit, was a very great surprise to me, and an agreeable one at that. From what I had read about the new models in the motor papers during the last two months or so, I thought that "No Change" would be the order of the day—at least, as far as chassis construction is concerned. It was this idea that prompted me to write as late as five days before the actual opening of the Show the notes on what I expected to find at Olympia, which appeared in last week's Show number of the AUTO., and which the Editor has given such a prominent position, not only in the paper itself, but especially in the poster. For this action on the Editor's part, I truly believe that we chauffeurs owe him a considerable amount of thanks—not so much I, personally, but chauffeurs as a class. I do not remember that a chauffeur's ideas on cars and their design have ever before been given such prominence, and it is gratifying, to say the least of it, to know that some people at least think that the chauffeur—who, after all, is quite a prominent factor in the motor industry, although he is not yet recognised as such—is slowly coming into his own.

All those fellow-chauffeurs who have not yet been to the Show, and who read these lines before it closes, I most strongly advise to make every effort to go to Olympia.

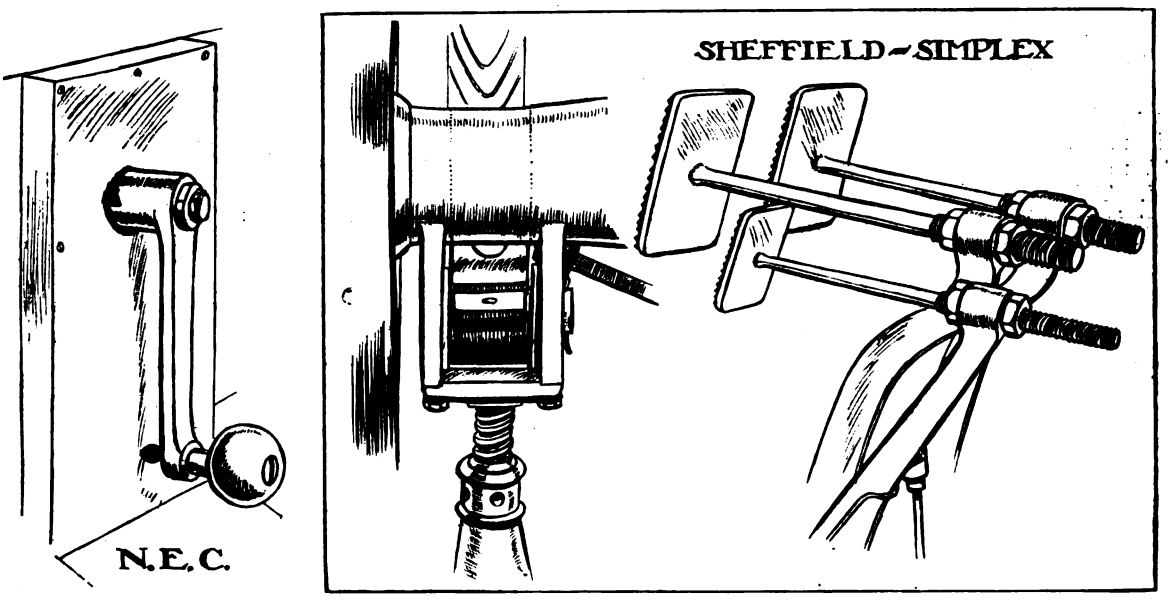
From conversations I had with many chauffeur friends before the opening of the Show, I know that I am not the only one who has been led to believe that not many alterations would be seen at Olympia; and for this reason many chauffeurs think that it is not worth while going to the Show this year. But all I can tell them—now that I have spent two days there—is, that we were very much mistaken. True, no startling alterations in engine design or in the design of other units of the chassis are to be seen, but at no previous Olympia Show have I found carried into practice so many improvements—real valuable improvements from the practical point of view of the chauffeur—as in the models shown this year. If you read in the papers, as we have frequently read during the last few weeks, that, "owing to the complete satisfaction 'X' cars have given during the past season, no vital changes have been effected in the design of their new models," all I can tell you is: don't believe it. Competition in the motor industry is keener than ever, and no designer can afford to sit still, and it appears to me that just because it has not been necessary to make any radical alterations in the design of the engines, the designers have devoted much time and thought to what often are called "minor details," and they have done so to good purpose. These minor details, to my mind, are as vital to the all-round efficiency of the car as a good engine or gear-box or axle. They may not appear to be so to the man who does not know from actual experience what it is to keep a



"Auto." (Yellow Cover) Copyright.

A Rolls-Royce limousine, with light hood extension over the driver's seat.

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"Auto." (Yellow Cover) Copyright.

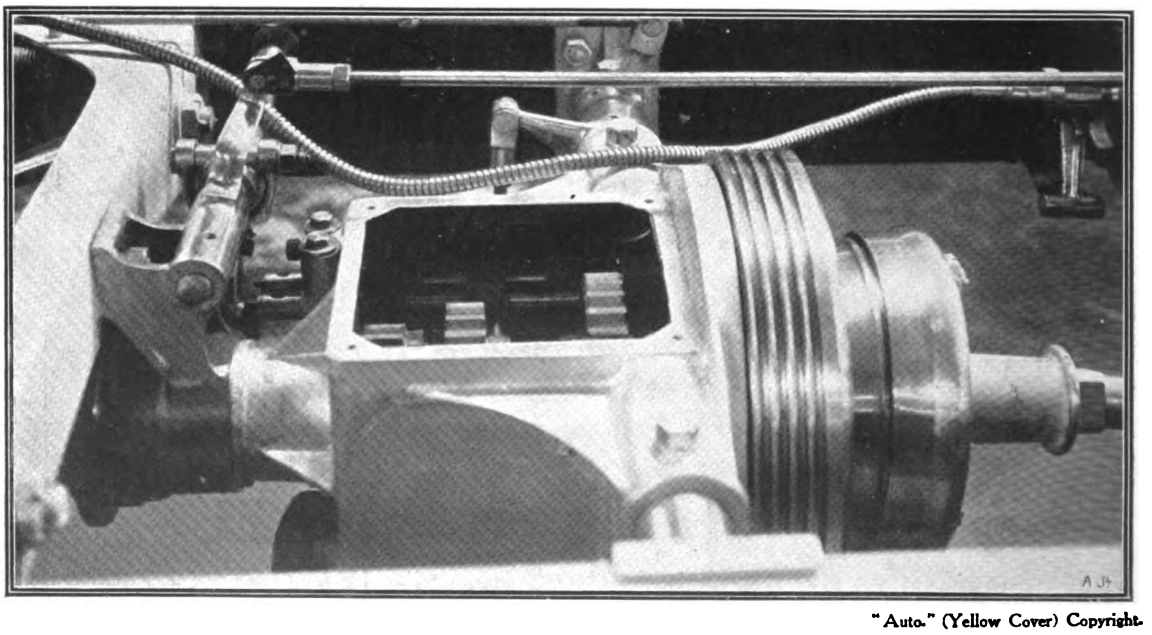
The Starting Handle on the Dashboard of the N.E.C. Car. On the right is shown the provision for setting a jack under the back axle of the Sheffield-Simplex chassis, and also the provision that is made for adjusting the pedals to suit the driver's natural reach.

car running satisfactorily day in day out all the year round, but they are important to the chauffeur and incidentally should be so to the owner-driver.

To pick out just one item in which the new cars show a very marked improvement over those at the previous show, I will say that while last year I had some considerable difficulty in finding a rear axle that had a convenient and safe place where to place a jack, this year I had to look quite a long time to find a car that was *not* so provided. But this is anticipating.

As I did last week, before dealing with the exhibits proper I will first say a few words on the management of the Show, and let me congratulate those responsible on the very happy idea of placing all the tyre people in the annexe. By doing so they have considerably improved the conditions that formerly prevailed in the gallery; and I believe that incidentally a very good service has been done to the coachbuilders, whose exhibits, as in former years, are in the annexe. Everybody wants to see the tyre makers and have it out with them, and on the way there many people are attracted by the formerly much neglected show of the coachbuilders, who thereby come in for more business.

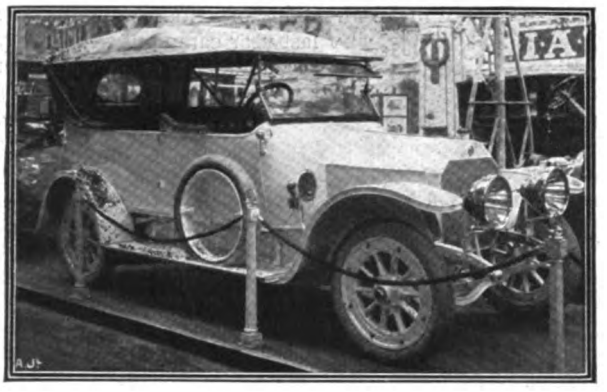
Dealing with the principal part of the Show—the cars in the main hall—I have already said that I was agreeably surprised to see the turn to the practical side of motoring



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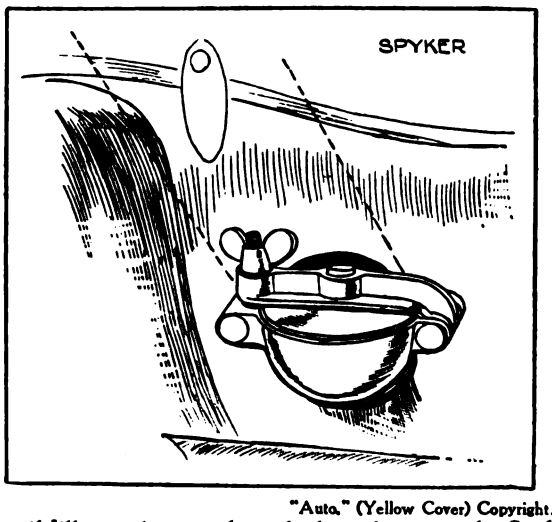
Although the Mass is an inexpensive car, it is an excellent engineering job, simple and effective both in design and construction. The above view shows its gear-box, foot brake, and universal joint.

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"Auto." (Yellow Cover) Copyright.
The latest 25-30-h.p. Mercedes.

that is evident in the chassis design as well as in the bodywork. There is a distinct increase in all-round accessibility, and, it appears to me, in the finish, as far as one can judge of this by merely looking at the chassis. There is, however, a tendency amongst the big firms which I strongly deplore, viz., the fact that many of the largest English manufacturers do not show a chassis. This fashion, which last year was started by Rolls-Royce, has this year been followed by Daimlers, Napiers, Argylls, Talbots, Armstrong and Singer, to mention but a few; while even some foreign makers — Metallurgique and

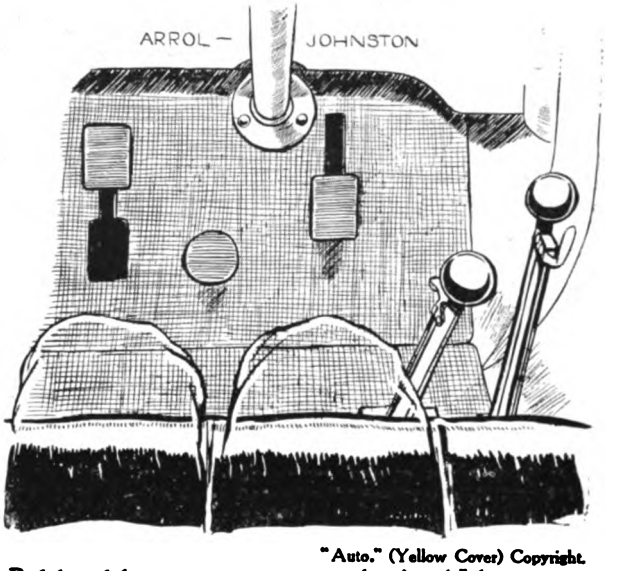


"Auto." (Yellow Cover) Copyright.
The oil-filler projecting through the valance on the Spyker car.

Delaunay-Belleville, for instance—likewise show complete cars only.

To my mind this is a great pity, in the interest of the public no less than in that of the firms themselves. Although I grant that the chief object of the Olympia Show is the sale of cars, a visit to the exhibition has been looked upon by tens of thousands as an education which they owe to themselves. Thousands of chauffeurs every year travel long distances to attend the Show, in order to keep their knowledge up-to-date, and manufacturers should do all in their power to afford us every opportunity to study their cars. The more a chauffeur knows about a car, the better he can and will look after it, and the better the car runs in consequence. The more the owner will like it, too, and the more he will say in its favour to his friends.

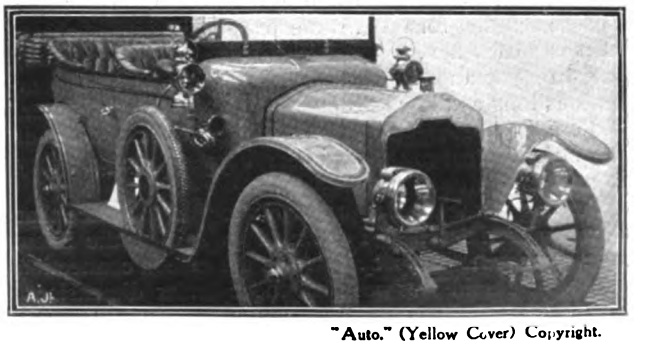
It is no use saying that any chauffeur who wants information can get it for the asking. It would never do for a chauffeur to approach an attendant whose time is already fully occupied by enquiries from possible buyers. If a chassis is on the stand a chauffeur can find out pretty well all he wants to know by simply having a good look round it, but just imagine what would happen if one of us were to ask permission to have a look under the floor boards



"Auto." (Yellow Cover) Copyright.
Pedal and lever arrangement on the Arrol-Johnston car.

of the limousine when the seats are occupied by a salesman sandwiched in between two more or less swagger ladies. But it is not only the chauffeur who takes a keen interest in the construction of the chassis; motor owners who buy expensive cars like to know what they are getting for their money, and those who are using big cars every day have by now learned that it pays to know something about them. I have noticed on the stand of one of the largest English makers that while on the first day of the Show one could hardly get a glance at the chassis part of the cars, on Saturday the bonnets and floorboards were removed all day long, and a considerably bigger crowd was seen on the stand and around it. Besides, there is yet another aspect to a manufacturer showing complete cars only. I just want to ask them whether it speaks very well of the confidence they show in their own goods, if they rely on the efforts of an outside firm of coachbuilders to sell them?

After all said and done, there is no better advertisement for a manufacturer than a well-designed and well-constructed chassis. It need not even be specially polished,



"Auto." (Yellow Cover) Copyright.
A well-finished standard Rover touring car.

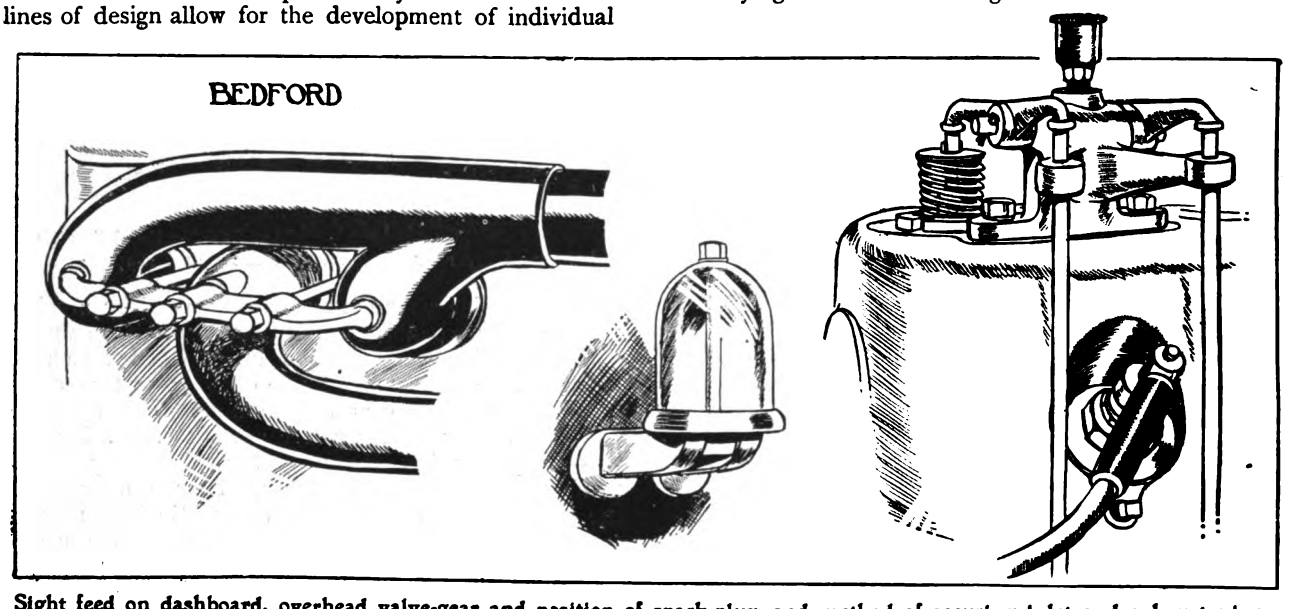
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in fact I much prefer it in the business-like grey, because it gives me a more correct idea of a chassis as it is delivered. A good design well made, even when shown in works finish, simply commands attention. Firms like Sheffield-Simplex, who in addition to two superb complete cars show a magnificent new 30-h.p. 6-cyl. chassis in ordinary works grey, will have, I am sure, all reason to be satisfied with the fact that they did show the chassis, because anyone who knows a good thing when he sees it cannot help stopping there, and the longer he stops the more he will admire this, that, or the other feature of the design, with the result that sooner or later the maker will benefit.

For the man who goes to Olympia chiefly to see the new chassis there is still plenty of opportunity to study fine work and good design. One of the most notable features to my mind of this year's show is the complete absence of so-called "freak" designs, and when you go round and study the various chassis you will be surprised at the enormous amount of scope ordinary so-called standard lines of design allow for the development of individual ideas. Although most of the chassis at Olympia are very good and show a real advance over their predecessors, I have found one or two examples where paint covers a multitude of sins. In one particular instance even this paint is smeared on in such slovenly and haphazard fashion that it cannot fail to give the onlooker a very true impression of the inward value of this scamped article, with the result that when it comes to buying a car he will give this particular one a wide berth. But there is no accounting for taste, some people will buy a cheap and nasty car when, by paying about half as much again, they can get another that will last them at least four times as long as the cheap one. These people, however, who are so short-sighted as only to study first cost are of very little interest to the chauffeur, because as a rule they do not employ one.

Turning to the chassis proper, I am glad to notice that so many of the things I expected to find at the Show have come true. Especially is this the case in connection with what I said last week on the cylinder dimensions. There is a distinct tendency, amongst English manufacturers at least, to increase the bore, and to get away from those diminutive 68 mm. engines. Wolseleys, for instance, do not make an engine of under 90 mm. bore; while the Star people, who last year came out with a very small-bore engine, have increased the bore of their smallest model to 80 mm. None of the other big firms of this country now make an engine of less than 80 mm. bore. Continental manufacturers, however, still adhere to the very small bore, chiefly, I am told, because of the taxation formulas of their respective home governments.

Messrs. Peugeot show on their stand a tiny car which they appropriately call a Baby. I am sure that the firm has brought out this type of car merely as an experiment, which, I am thinking, will not be continued next year. The fault of the little vehicle, which is so light that one man can lift it, is not that it is not powerful enough, but rather that it is fitted with much too strong an engine. I was told that it could do 40 m.p.h. and that it is very comfortable, but even taking the stories of the salesmen with a grain of salt, I should not like to ride in it at any such pace. However, there is no denying the fact that Peugeots are a firm who know their business and are not likely to turn out anything that would not come up to the excellent and well-deserved reputation of their larger cars, so we shall see what we shall see, and I for one will certainly watch the running of their latest model with interest.



Sight feed on dashboard, overhead valve-gear and position of spark-plug, and method of securing inlet and exhaust pipes on the 18-h.p. Bedford chassis.

I have been enquiring into the internal construction of many engines, and have been told that quite a number of them have drilled pistons and connecting-rods as standard. This lightening of the moving parts is by no means confined to those firms who have a considerable experience with racing, like Stars and Sunbeams, but Wolseleys, too, have drilled the pistons at least for a double purpose. Not only are drilled pistons lighter, but the holes also facilitate cylinder lubrication, and to some extent reduce the tendency to smoky exhaust. Much to my regret, I still notice a good many big-end bearings with the white-metal cast direct into the connecting-rods. Although in actual running there is no difference between this type of bearing and the detachable bush, there is all the difference when it comes to taking up wear. It has been pointed out in this journal before, that when a bearing with the white-metal cast into the rod is being taken up some metal has to be removed from the face of

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the connecting-rod with the result that the rod is permanently shortened, and the compression, therefore, decreased to some extent. Although this is not much, it will tell in the long run, and it could so easily be avoided by fitting separate bushes to the bearings. Now that white-metal can be cast in dies under pressure without the fear of weakening air-bubbles, there is to my mind no excuse for a manufacturer to cast the anti-friction metal direct into the connecting-rods.

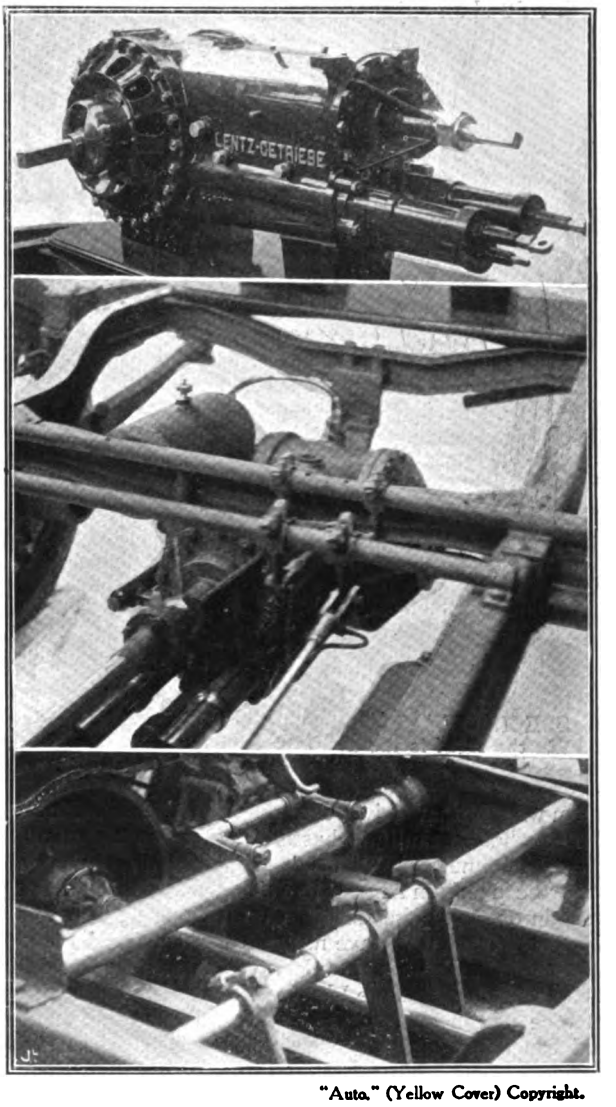
Engine cooling is very much the same as it was last year, but I believe I noticed that some makers are inclined to return to pump circulation of the cooling water instead of thermo syphon. Whichever it is, more attention could be paid to the accessibility of the water-joints especially those at the bottom of the radiator, which are often very awkward to reach. So are very many of the drain-taps or plugs, which could easily be placed in positions where they are get-at-able and where the water when it runs out does not splash on the axle or wheels. Where special drain-taps are fitted to the water-jackets of the cylinder they are in some cases so placed that when they are opened the whole stream of water goes over the magneto or carburettor. Surely there ought to be no need for me to point out such carelessness. I have also been looking and inquiring for syphon tubes fitted to the water-jackets of the cylinder heads of sleeve-valve engines through which the water could drain out when it is necessary to empty the cylinder-jackets on a cold winter's evening. One has not always a syringe handy with which to take the water out of these dead pockets, and even if you have one you are never certain to get it all out. All these things a chauffeur has to think of if he wants to keep his car on the road every day and under all conditions, and again I say there ought to be no need for me to point them out to the designers of these engines.

Very little progress has been made in the lubrication of the engines. Semi-splash systems—that is to say, systems in which a pump fills troughs under the big-ends and the oil is picked up by spoons and splashed up to the pistons—seem to be favoured by many makers. I believe that this is done by most of those who have adopted this type of lubrication simply because one very prominent maker has started it and because it is cheap to make. I prefer very much the forced-feed systems, in which the oil is fed direct into the crank-bearings, through the hollow shaft to the big-end, and from there through copper tubes attached to the connecting-rods up to the little-end bearings. This latter part is often left out, with the result that I have lately come across quite a number of engines which developed a knock, and when they were taken down it was found that all the big-ends were tight, but the gudgeon-pin bushes had worn and wanted renewing. Some kind of reliable indicator ought to be fitted to the dashboard, and in this connection I much prefer the plunger type of indicator, as fitted by most English makers, to the gauge which is favoured by Continental firms. Gauges, however well made, soon go wrong, because in the morning, when the oil is cold, the pressure set up by the pump is very much higher than when the oil is warm, with the result that gauges are quickly spoiled by the over-pressure in the morning. One English firm, Vauxhalls, fit two indicators, a gauge and a plunger, and the fact that the gauge is fitted with a tap shows that the designer is fully aware of the shortcomings of the average gauge for this purpose.

There are still a good many oil pumps driven by the tail end of the cam-shaft and bolted to the crank-case in a position where you cannot possibly get at them without taking the flywheel down at least. The position of the pump in the bottom of the oil sump, as on the Arrol-Johnston and the Chenard Walcker cars, for instance, is much to be preferred even if you have to drain out all the oil when you want to clean the filter. These pumps can be withdrawn bodily after undoing a few nuts, and, by making them so, a chauffeur is encouraged to keep them in order. When the pump is in a very awkward position, he postpones the job of cleaning it out as long as possible, often until it is too late.

Filler openings through which the oil is poured into the sump are much better this year, and makers have paid much more attention to the accessibility of level cocks and such like fittings.

A lull seems to have come into the controversy of slide valve versus poppet valves. I have not noticed any new



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THE LENTZ HYDRAULIC GEAR.—The upper view shows the gear separately, the central view shows the gear on a Charron chassis, while the lower view shows the central portion of the chassis where an ordinary gear-box would be situated. The gear serves as a differential mechanism, in addition to providing a range of speed. It consists of a paddle pump and hydraulic motor, and is simple and apparently effective in use.

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designs of the former type; there are still the Daimlers and Argylls with their sleeve-valves, and Darracqs and Italas, with their rotary valves. Of course there are a number of other makers who fit the Daimler-Knight sleeve-valve engine, but I do not notice any change in the design, although I am told that Daimlers have recently effected considerable improvements as the result of a prolonged study of the relationships of bore, stroke, and valve travel.

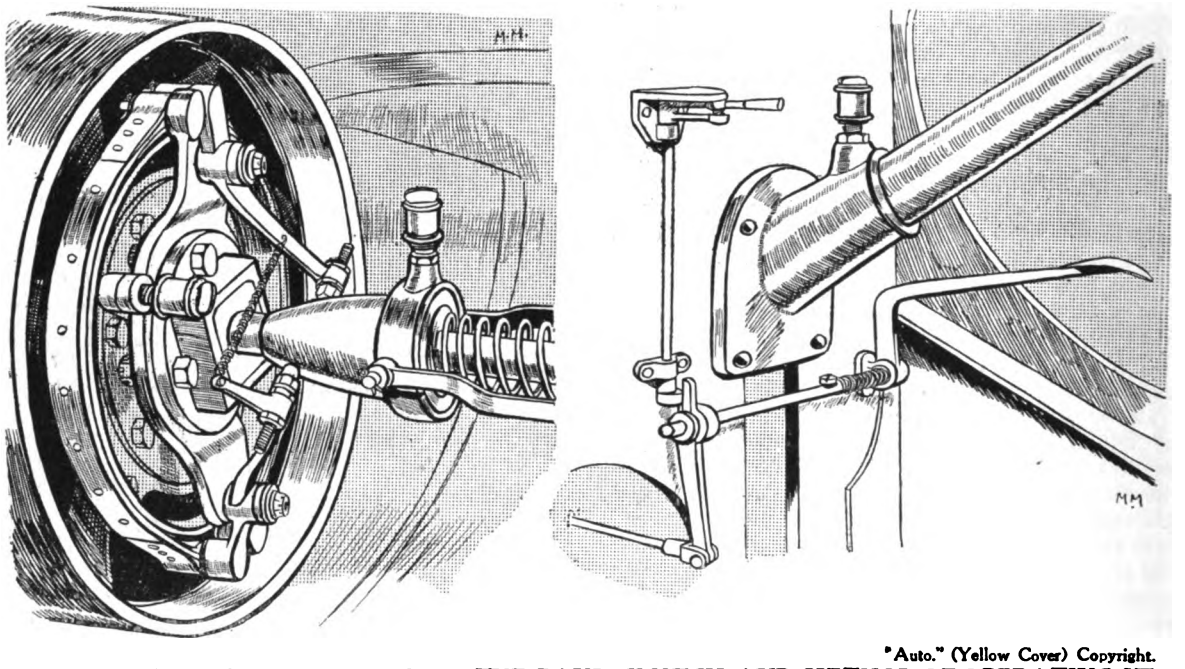
It is very pleasing to see the other makers of non-poppet valves improving their design. Darracqs have grooved their distributor-barrel in a manner which facilitates lubrication and at the same time ensures a good fit, while Argylls have been able to do away with the junk ring in the cylinder-head without ill-effects on the compression. They have also altered, so I am told, the oil grooves in the sleeve, so that a perfect lubrication is always assured without a smoky exhaust. They have further fitted an adjustable ball-thrust bearing behind the worm-wheels that drive the sleeves. Messrs. Piccard-Pictet, whose beautiful chassis is shown on the stand of Messrs. Donne and Willans, is fitted with an engine built under licence from Argylls, in which the sleeves alternately work in opposite directions. Curious to say, nobody on the stand seemed to have noticed this fact until I pointed it out to them, with a remark to the effect that I thought it a fine thing; because I believe that, owing to the better balance of the sleeves, the engine will run still quieter, and the thrust on the eccentric shaft is equalised automatically.

Returning to the subject of poppet valve engines, there is still the tendency to box in the valves in such a manner that the valves on both ends of the casting are very difficult to get at. The Italians, in particular, seem to be past masters in the art of making an engine look square and trim, but I believe that this fine appearance is bought at too great a price. That it is, however, quite possible to cover up the poppet valves and yet leave them perfectly accessible after removing the cover is shown in that very fine 12-h.p. Panhard chassis, where the cover-plate in no way interferes with the accessibility of the valve-stems. Indeed it would be difficult to find an engine where the valves are easier of access than the one just mentioned. If those designers who will cover up their valve stems simply because it is the fashion really want to copy someone else's design, let them at least be careful in the selection of their models.

There is no doubt that many manufacturers are returning to the hand-timed ignition, and every chauffeur will be pleased. There is no need for me to add anything to what I said last week on the way a magneto should be mounted on the engine, according to my way of looking at it, except, perhaps, that not all makers have quite realised the truth of my remarks. I have, however, the satisfaction of seeing that a big English firm, whose design in this respect I had criticised quite freely on their stand last year, has made an alteration on the lines indicated by me at the time. This shows me that chauffeurs should speak up if they think they can point out something that is really better than what they see on a chassis, and it also shows that the firm in question is not above accepting the advice of a chauffeur if they see that he is right.

I also notice with very great satisfaction the almost universal adoption of the new type of water and dust-proof magneto, which, I am sure, will be still more reliable than the unprotected machines we had up to last year. I have always been an advocate of protecting the magneto against water and dust, and, where the ordinary open type of magneto is still fitted, it should at least be adequately shielded by an efficient cover, such as is to be found on the Berliet and Brasier chassis.

The subject of carburation still attracts considerable attention, and a number of new and original designs are to be seen. I notice that the Daimler Co. have altered their carburettor design, and Humbers, too, fit an entirely

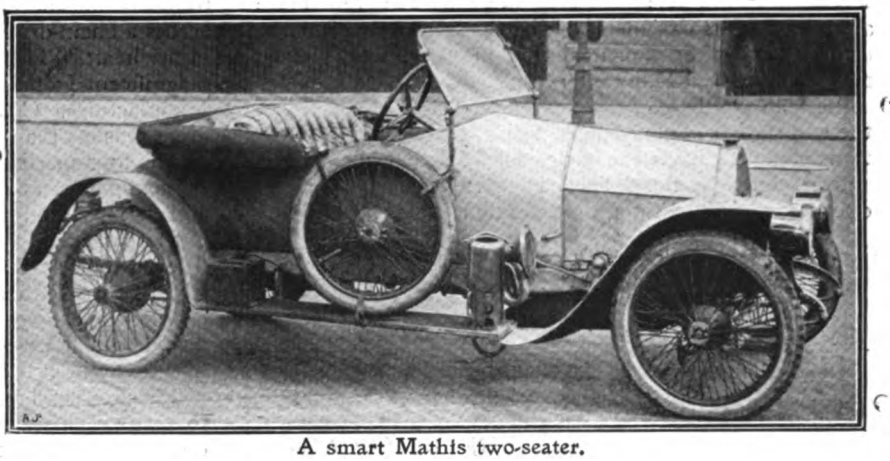


"Auto." (Yellow Cover) Copyright.

SPECIAL FEATURES OF MORS DESIGN, THE BAND CLUTCH, AND METHOD OF OPERATING IT.—On the right is the accelerator-pedal and the small lever on the dashboard, by means of which the throttle opening is set for minimum running, so that the release of the pedal does not stop the engine.

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new form jet carburettor. For the first time, as far as I recollect, the Lanchester Motor Co. show on their stand a Lanchester carburettor in section, and like every other exhibit of this firm it is always surrounded by a crowd. It is curious that everything emanating from Armourer Mills in the minds of many not conversant with Lanchester design, seems to be shrouded in mystery. I was highly amused watching the faces of the listeners when the attendant explained the extreme simplicity of the carburettor. "It's like the story of the empty box," I heard one of them say as he walked away, "there is nothing in it, and I always thought they were such a box of tricks." Indeed, considering what a Lanchester carburettor will do, I am surprised to see that no other designer tries his hand at a wick carburettor, which if it had no other advantages, certainly is without the hissing noise which is so typical of many other carburettors, and to which many people take a strong objection.



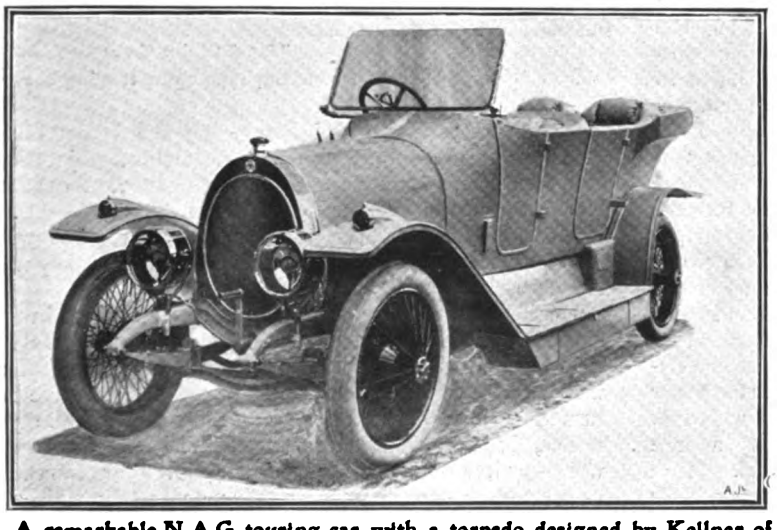
A smart Mathis two-seater.

Air-inlets to carburettors still want protecting by wire gauze. Those that I have found fitted in a few instances, notably to the Zenith carburettor on Argyll and other cars, seem to be there merely to break up the air current and to prevent the hissing just mentioned, but they do not prevent dust being sucked into the engine, as they might very easily be made to do.

As to the heating of carburettors and induction-pipes I notice that many designers now realise the advantages of a well-heated mixing-chamber, but the heating itself to many of them seems to be still somewhat of a problem, especially in thermo-syphon cooled engines. In some instances I have seen the water-jackets of carburettors connected up in a very haphazard fashion, so that if any flow of water takes place at all through the jacket, only cold water would enter the jacket. There is absolutely no difficulty in making sure of a good circulation of *hot* water through the jackets of a carburettor on a thermo-syphon cooled engine. I have done it myself successfully in many cases, and with the editor's permission, I shall at some future occasion give my way of accomplishing a thing that seems to be a great obstacle to many designers. In most cars I still miss adequate provision for draining out the petrol tank, especially when the tank is on the dashboard. One of the American cars, I believe it was the Hupmobile, is fitted with a special tap for this purpose, and I see no reason why other cars should not be similarly provided. The filler plugs of many dashboard tanks, too, are so very close to the dash and wind screen that it is next to impossible for a funnel to stand up in them, so that two men are wanted to fill up, one to hold the funnel, the other to pour out the petrol. Argylls have overcome this difficulty in a most ingenious manner by telescoping the filler spout and providing it with a fine strainer on the inner end so that not only is the spout right away from the dash when pulled out for filling up, but no funnel is needed on account of the strainer inside and of the wide mouth of the filler-cup.

Pressure tanks fitted at the rear end of the frame are much better in this direction. Many of them are provided with caps large enough to admit a man's hand, and in a few cases they have a castellated crown so that no special spanner is needed for opening them. Any screwdriver, tyre lever or even petrol tin that is just handy will do the trick. I also notice on the Crossleys, Sheffield-Simplex, Valveless Dodson, and a few other cars that the petrol-tap is placed in close proximity to the filler opening on the tank, where it is readily accessible. One feature on the Crossley pressure tank that I think is very good indeed is the provision of a small sump underneath to catch any water that may get into the tank. The sump can be unscrewed from outside and acts as a good-sized drain-tap.

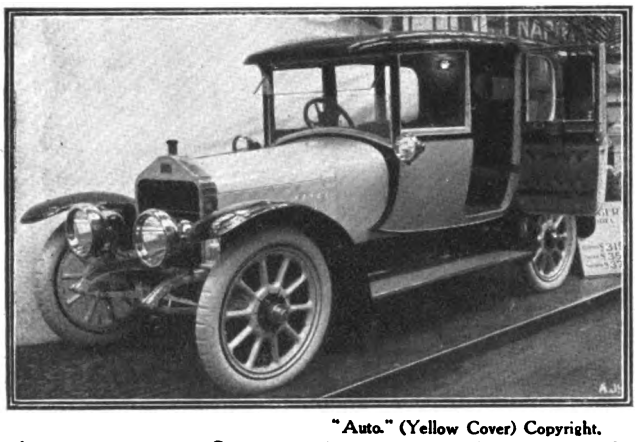
On the matter of carburettor control I still prefer a proper throttle lever on the steering wheel in connection with an accelerator, to any of the more or less flimsy fittings on the dashboard. A lever on the steering wheel enables you now and then to give your foot a rest, which on long journeys is very welcome. In the country you can drive just as well with the hand throttle, provided that it is within reach of your fingers, but this is not the case when the auxiliary throttle is on the dashboard.



A remarkable N.A.G. touring car, with a torpedo designed by Kellner of Berlin. Note the manner in which the hood is enclosed in a case forming an extension of the body panel.

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Transmission, it appears to me, has received more attention by the designers during the last twelve months than at any other similar period in the history of the motor industry. Many interesting and new features are to be seen at Olympia, most of which have as their object the still further elimination of noise from any part of the transmission. Even the hydraulic Lentz transmission is shown complete fitted to a 15-h.p. Charron car, but it does not seem to attract the attention it deserves. The



"Auto." (Yellow Cover) Copyright.

A very attractive Singer enclosed car, with central side doors.

gentleman in charge of this exhibit told me that it has now been fitted to a number of cars, and promised me a run on one of them some time after the Show. I am looking forward to this with very keen interest indeed. The chassis certainly looks very much simpler than with the orthodox gear-transmission, and there are five forward speeds and a reverse, not to speak of the simple and effective hydraulic brake you get thrown in with this kind of transmission.

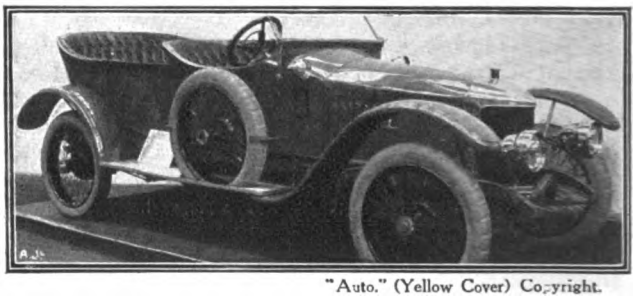
Before I deal with the ordinary type of gear transmission I will first mention two other cars that have a transmission which differs radically from what is called accepted practice. Both these cars are voiturettes, one is friction driven and the other has a belt-drive of peculiar design. The latter attracted my attention chiefly because its wide belt recalled memories of the old days when we used to go belt-hunting, a pastime of which the modern chauffeur knows nothing. In this little car, called the Globe car, which is shown on the stand of Motor Mercantile, Ltd., the drive is transmitted by a broad belt to a countershaft wherefrom the off-side rear wheel only is driven by an encased roller chain. Inside the hub of the driven belt pulley is an epicyclic gear which gives two speeds forward and a reverse. The changing of the gears is effected very ingeniously by sliding the pulley forward so as to slacken the belt and then engaging a dog-clutch. The car is of British manufacture and fitted with a single cylinder water-cooled engine. The friction-driven Dumond Voiturette, which is of French origin, and to be seen on the stand of Messrs. Osborne and Co., is fitted with a single-cylinder air-cooled engine with inside flywheels like a motor-cycle engine, but of very much larger dimensions. On either side of the crank-case, which is mounted with the crank-pin across the frame, is a large friction disc each of which drives a friction-wheel. Each of these two friction-wheels drives one of the rear wheels through a long propeller-shaft and bevel-gearing. No differential is fitted, nor is one necessary.

All the other cars are fitted with the usual gear transmission, and only in one instance have I come across a chain-drive, for which I still have a warm corner in my heart. This one and only chain-driven car is the magnificent Isotta Fraschini on the stand of the Motor Manufacturing Co., and it is well worth looking at for more reasons than on account of the chain-drive.

The four-speed gear-box is adopted more and more by manufacturers of small and medium powered cars, and it is something to be thankful for, as I pointed out last week. One of the makers who fit this "luxury" to even their smallest and cheapest models are Austins, while others either fit three-speeders only or give their clients the choice of a four-speed box at a slight extra cost, which, if I were buying such a car, I should consider would pay in every case.

There are still a great many manufacturers who neglect to make proper provision against the loss of lubricant out of the gear-box bearings. Of course, the old and simple remedy of fitting a vent-hole meets the case almost every time, but still it is the exception rather than the rule to find a gear-box fitted with a vent. Another way to prevent liquid grease from being forced out of the bearings I have seen carried into practice on the American White petrol cars, where a spiral groove is cut into the journal of the gear-shaft in such a way that it acts as a kind of turbine and forces the oil or grease back into the box instead of out of it. I used this method myself on the end-bearings of a crank-shaft some years ago, and thereby stopped the oil running out there, and I cannot see any reason why it should not be more widely used.

In cases where the gear-box is not bolted on to the engine-casing so as to form a power unit, or where it is not bolted to the same subsidiary frame that also supports the engine, much thought has been spent on the suspension of the gear-box. Thus we see cars, in many cases—like



"Auto." (Yellow Cover) Copyright.

The 25-h.p. Vauxhall sporting type open touring car.

De Dions, Sunbeams and Stars—the gear-boxes hung flexibly on three points, with an almost universal-joint on one side. This makes for ease of changing, on account of the absence of side-strains on the shafts and wheels.

Most of the universal-joints are now provided with really efficient metal casings, instead of the old ugly and utterly useless leather shoes.

Engineers are still unsettled as to the final drive in the rear-axle. While some have adopted the worm-drive for their new models—as in the new 30-h.p. Sheffield-Simplex, which has a genuine Lanchester worm—others have returned to the bevel as the more efficient; while yet others, like Wolseleys, offer their clients a choice between worm- or bevel-drive. Many driving-bevels are mounted so that they can be meshed very accurately with the crown-wheel by means of an adjusting-collar on the outside. In addition to a pair of ball-races and a thrust-washer on the forward end, many are provided with an

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additional steady-bearing inside the differential-casing, which, to my mind, is excellent practice, and should go a long way towards keeping the bevel quiet.

If, as everyone is ready to admit, the continuous leaking of lubricant out of the gear-box is a nuisance, to say the least of it, loss of grease out of the sleeves of a live axle is nothing short of dangerous. In view of this fact it is astonishing how very few manufacturers make a real attempt to stop it. The only car that I noticed to be fitted with vent holes in the axle casing, one on either side of the differential is the Lanchester. Others may be fitted with more or less efficient felt washers at the bearings, but if you want to see of how much use they are, just go outside and look at the spokes of the rear wheels on the trial cars.

Every year sees an increase in the number of detachable wheels, which, as I have said before, I prefer to a detachable rim of any kind. Even low-powered and comparatively cheap cars like the little Arrol-Johnston and the 12-h.p. Argyll, are now provided with detachable wheels of the firm's own manufacture as a standard equipment, and this is a point in which English manufacturers are years ahead of their foreign competitors, who still fit ordinary fixed artillery wheels, and ask an enormous amount over and above the ordinary price if they condescend to supply you with detachable wheels.

Now that I have come to the end of the space allotted to me I find that I have only dealt with the chassis at Olympia, and have not even exhausted this subject. There are a good many more things at the Show on which chauffeurs have an opinion of their own, such as self-starters, electric lighting sets, bodywork and some accessories, so that quite a number of subjects are left over to be dealt with from the chauffeur's point of view in the fourth Show number of this paper. N.S.C. 16.

SELF-STARTERS ON CARS AT OLYMPIA.

The following is a brief list of the cars equipped with self-starting mechanisms at Olympia :—

Adams.—Pneumatic type, consisting of an air compressor on the front end of the crank-case charging a cylinder attached to the chassis frame. The compressed air at 300 to 400 lb. per sq. in. is delivered through a rotary distributor and small automatic poppet valves to the cylinders in proper firing sequence. The compressor is driven by an eccentric and the distributor is operated from the cam-shaft. The compressed air is equally available for inflating tyres and for operating a pneumatic jack.

Adler.—Spring type, of the "Ever Ready" pattern, consisting of a coiled spring arrangement enclosed in a brass case occupying the position ordinarily filled by the starting handle.

Cadillac.—Electric type, of the Delco pattern, consisting of a dynamo driven by the engine charging a battery of accumulators, which discharge through the dynamo for the purpose of starting the engine. The dynamo is driven by the magneto shaft through a free-wheel clutch and the engine is driven by the dynamo, for starting, through a sliding gear mechanism that is drawn, by a pedal, into engagement with gear teeth on the fly-wheel rim. This gear drive is also connected through a free-wheel so that the engine overruns it when the engine starts. Alternatively, the dynamo overruns the other free-wheel when the dynamo is starting the engine, but this free-wheel automatically picks up the drive of the dynamo when the engine has started. The system is available for electric lighting.

Clement.—The "Ever Ready" spring self-starter is fitted. See Adler.

Crossley.—Electric type of the Scott-Crossley pattern consisting of a dynamo mounted alongside the engine and chain driven from the crank-shaft. The feature of the system is an epicyclic gear contained in an extension of the dynamo bracket. This gear is so arranged that the mere operation of a lever on the dashboard interposes it between the chain drive and the dynamo spindle so that the dynamo has a 20 to 1 reduction when it is starting the engine. When the engine is running, the gear automatically goes out of action; if the engine backfires, the drag on the brake that applies the epicyclic mechanism automatically releases the gear. The weight of the gear is about 15 lb. extra on the weight of the dynamo. When the dynamo is driving the motor it is automatically series connected by the lever on the dashboard; when the engine is driving the dynamo, the dynamo operates as a shunt wound generator for the purpose of charging the battery of accumulators that supplies the current for the lamps and for starting purposes.

Enfield.—Pneumatic type, consisting of a single cylinder compressor mounted on the crank-case for charging a reservoir operating a mechanical starter of the ratchet type. The starter consists of a single cylinder pump containing a piston with a rack attachment engaging with a free-wheel pinion on the coupling between the engine and the gear-box.

La Buire.—Combined spring and hand type arranged for operation from the driver's seat by a side lever similar to a brake lever. By means of a steel cord this lever operates a ratchet starting crank in the place of the usual starting handle. The lever is assisted by a spring. The ratchet starting crank is fitted with a centrifugal disengaging clutch that flies out of action automatically directly the engine rotates. It also frees itself against a backfire.

Lancia.—A Bosch auxiliary engine starting magneto is mounted on the dashboard. This is an ignition starting device and depends on the cylinders being already charged with gas.

Lanchester.—The Delco electric system is fitted when required.

S.C.A.T.—Pneumatic type consisting of an engine-driven compressor and distributing gear for supplying the compressed air to the cylinders in firing sequence. This type of self-starter has been a standard fitting of the S.C.A.T. cars for some years.

Sunbeam.—Pneumatic type, consisting of a single-cylinder compressor on the gear-box charging a reservoir that operates a three-cylinder single-acting compressed-air motor mounted alongside the engine, and driving through a sliding-gear on to the toothed periphery of the fly-wheel.

White.—Electric type, consisting of a dynamo mounted high up alongside the engine, and driven by a vertical chain from the magneto-shaft. The dynamo charges a battery of accumulators, which discharge through the dynamo for starting purposes.

Wolseley.—Pneumatic type, consisting of a two-cylinder compressor, chain-driven from the gear-box, charging a reservoir that supplies compressed air to the cylinders in the correct firing sequence through a distributor and non-return valves. The distributor is driven from the front end of the cam-shaft.

DYNAMOS ON CARS AT OLYMPIA.

The following is a brief list of cars fitted with dynamo lighting sets at the Olympia Show :—

Armstrong-Whitworth.—C.A.V. type, dynamo driven from rear end of cam-shaft.

Arrol-Johnston.—Rotax-Leitner type, dynamo belt-driven from front end of cam-shaft.

Austin.—C.A.V. type, dynamo chain-driven from rear end of crank-shaft.

Briton.—Rotax-Leitner type, dynamo chain-driven from the cam-shaft.

Cadillac.—Delco type, dynamo shaft-driven by the magneto spindle.

Crossley.—Scott-Crossley type, dynamo chain-driven from the crank-shaft, chain enclosed.

Daimler.—C.A.V. type, dynamo belt-driven from the front end of crank-shaft.

Lanchester.—Delco type, dynamo chain-driven from the transmission shaft behind the gear-box.

Lancia.—Rushmore type, dynamo belt-driven from the propeller [shaft just behind gear-box.

Lorraine-Dietrich.—C.J.L. type.

Mass.—C.A.V. type, chain-driven from the cam-shaft.

Nazzaro.—C.A.V. type, dynamo belt-driven from the water-pump shaft.

Piccard-Pictet.—Blériot type on the 20-30-h.p. model, dynamo belt-driven from pulley behind clutch. C.A.V. type on 30-40-h.p. model, dynamo similarly driven.

Sheffield-Simplex.—Ducellier type, dynamo mounted alongside magneto, and similarly driven by a separate spindle.

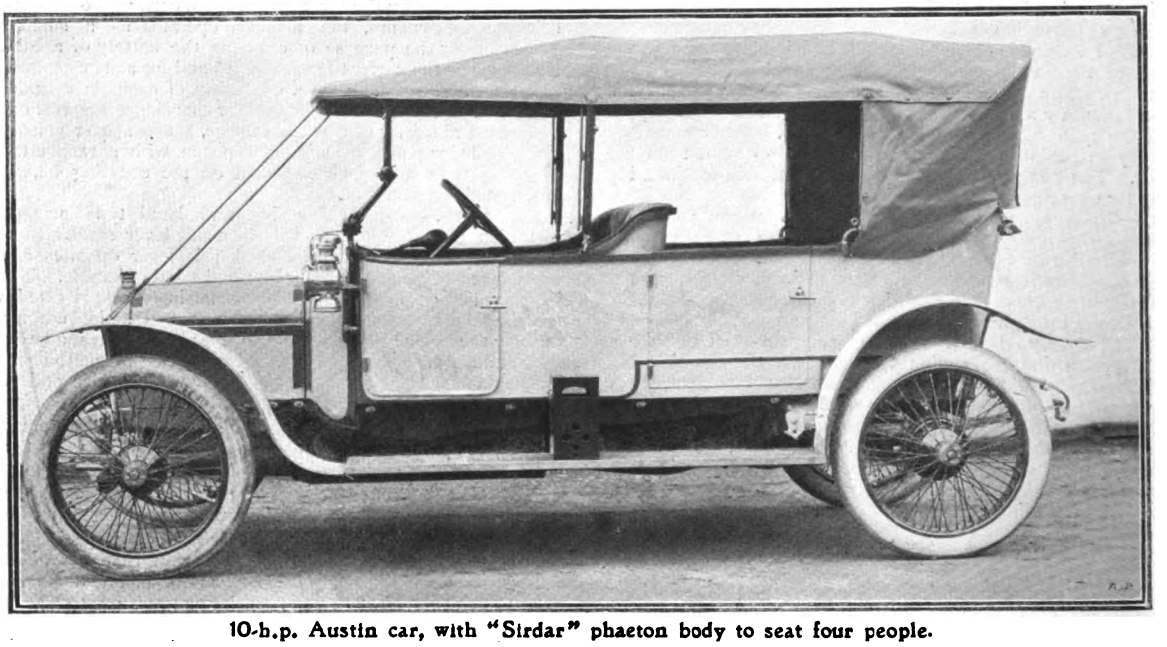
Standard.—Brolt type, belt-driven from aluminium pulley situated between clutch and gear-box.

Vulcan.—Rotax-Leitner type, dynamo belt-driven from pulley between clutch and gear-box.

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AUSTIN CARS.

FOR a number of years the makers of the famous Austin cars have not waited for the annual motor show to incorporate into the design of their cars all those improvements that have been found necessary or desirable in the course of the year. They have adopted the very sound policy of making any alterations in the construction of their chassis as soon as the value of the proposed innovation had been proved by thorough experiments in the shop as well as on the roads. Purchasers of Austin cars therefore have the assurance that when a car is delivered to them they receive in it everything that is latest and up-to-date, regardless of whether the latest improvement has been shown at the previous Olympia Show or not. It may happen therefore that the exhibits of the Austin Motor Co., Ltd., at the Olympia Show may embody a number of improvements which are not absolute novelties in so far as they have been incorporated in standard Austin cars for a number of months, but they are new in so far as Olympia itself is concerned.



10-h.p. Austin car, with "Sirdar" phaeton body to seat four people.

As far as the range of models and their general design of the chassis are concerned, no very radical alterations will be noticed at this show, nor were any necessary, because Austin cars have been giving such complete satisfaction both in the hands of private owners and in competitions. But the bodywork, which is also manufactured in the company's own works, has been redesigned to some extent in order to increase the comfort of the occupants by providing more leg room, and incidentally the cutline of the car as a whole has been improved considerably in the process. The new models consist of the 10-h.p., 15-h.p., 18–24-h.p. and 40-h.p. with four-cylinder engines, and the 50-h.p. which is equipped with a six-cylinder engine. With comparatively few exceptions, all models are identical with those of last season. Engine dimensions remain the same, and no alterations of any consequence will be found in any but the smallest model. This little popular car, however, has been improved to some considerable extent, and refinements have been incorporated that usually are only associated with cars of considerably higher power and corresponding price. A number of well known Austin features, which up till now have only been embodied in the higher powered cars of this make, are now to be found in the smallest type. Variable ignition is now fitted instead of the old fixed firing point; the Ferodo lined segmental clutch, which created somewhat of a sensation when it was first shown on the 15-h.p. model last year, is now to be found in the 10-h.p. Ball bearings are now used throughout the rear axle, while plain bronze bushes are retained in the gear-box on account of their very silent running. The new gear-box, however, varies in so far as it provides four speeds and a reverse instead of the three forward speeds as in last year's model. We attach considerable value to this improvement, the more so as it seems that these handy little Austin chassis are mostly fitted with four-seater bodies and carry a considerable load. Under these circumstances we feel sure the additional speed in the gear-box will prove a real boon. Both brakes have been increased in size and have been provided with accessibly placed hand-adjustments.

Refinements have been introduced into the design of the engine proper in so far as the induction pipe is now water jacketed, which should make for complete vaporisation of the fuel and thereby increase the already high efficiency to some extent, while an oil level indicator is fitted to the lower half of the base chamber close to the filler opening, and will be found a great convenience by those who look after the cars.

As stated above, the bodywork has been entirely redesigned, and even the small 10-h.p. is now provided with that convenient way of fitting the horn rigidly to the dashboard so that it projects through the centre of the curvature of the dash as has been the case for some time in the larger models.

All the other models, as far as the chassis is concerned, remain unaltered. Austin patented full elliptic rear suspension still renders them very smooth and easy riding vehicles, and the only alteration that will be noticed on the larger types will be found in the body-

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work. At the time when we visited the Austin works, the new bodies were unfortunately not far enough advanced to be photographed. We have therefore to confine ourselves to stating that some very fine examples of bodywork are being shown by the Austin Co. at Olympia. Those who are looking for a powerful and roomy touring car we should recommend to see the "Defiance" Torpedo body on their 40-h.p. chassis. The "St. Ledger" Cabriolet on an 18–24-h.p. chassis combines the advantages of a perfectly open car with those of an enclosed or partly enclosed town carriage, and in this way is somewhat of a novelty in so far as, when closed, it resembles very much the usual style of Cabriolet, but has the additional advantage that it can be opened up entirely like a touring car or only half-way, like a Landaulet in which the side windows in the door and bodywork remain up while the back is folded down.

Throughout their range of models the materials and workmanship are up to the standard which we have been used to see in Austin cars ever since the first car was turned out of Longbridge Works. Last, but by no means least, a very useful and well written book of instructions is sent out with every Austin chassis, and contains full details as to the treatment the car should receive in order to give complete satisfaction. It is profusely illustrated and contains a large reproduction of the chassis mounted on linen paper suitable for framing and hanging up on the wall of the garage. In this position it will be found very useful for reference when oiling up and generally overhauling the chassis with the oil can or grease gun.

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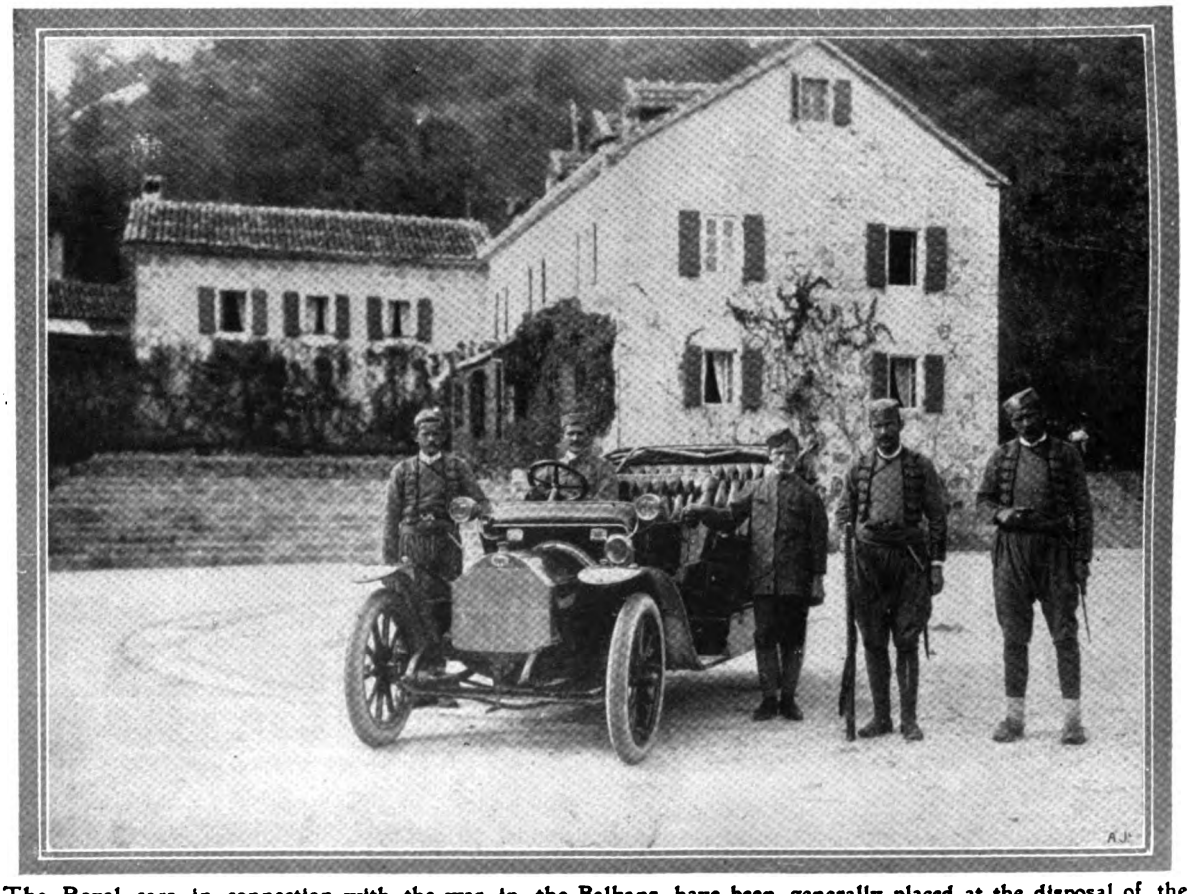
The Work of London's Police.

ALTHOUGH it is a little belated in appearing, the Annual Blue Book of the Commissioner of Metropolitan Police, giving details of the work of his force during the year 1911, contains much food for thought. Turning to the statistics regarding licences, we find that there were 16,476 stage carriages licensed as against 15,955 in 1910, and, of course, the horse-drawn vehicle showed a further decrease, while motor vehicles continued their upward tendency. As a matter of fact, there were 949 hansoms, 422 four-wheeled cabs, 317 horse-drawn omnibuses and 30 horse tramway cars less in 1911 than in 1910, while there were increases of 1,229 motor cabs, 762 motor omnibuses, and 254 electric tramway cars. Of the 2,657 new vehicles registered in 1911 only a round dozen were horse-drawn. 7,954 motor cab drivers' licences were issued, and 7,612 motor stage drivers' licences.

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Daimler Worm-Drive Efficiency.

SOME interesting and very valuable tests have just been published by the Daimler Co., showing the efficiency results obtained by the National Physical Laboratory on a Lanchester worm-drive, as used in the Daimler cars. One of the most remarkable graphs shows an efficiency of 95 per cent. at 400 r p.m. and 20-h.p. rising to nearly 97 per cent. at 1,500 r.p.m. and 80-h.p. The graph is of the useful sort, that is to say not a curve with a mere peak to it, but one that indicates an exceptionally high efficiency throughout a very wide range.

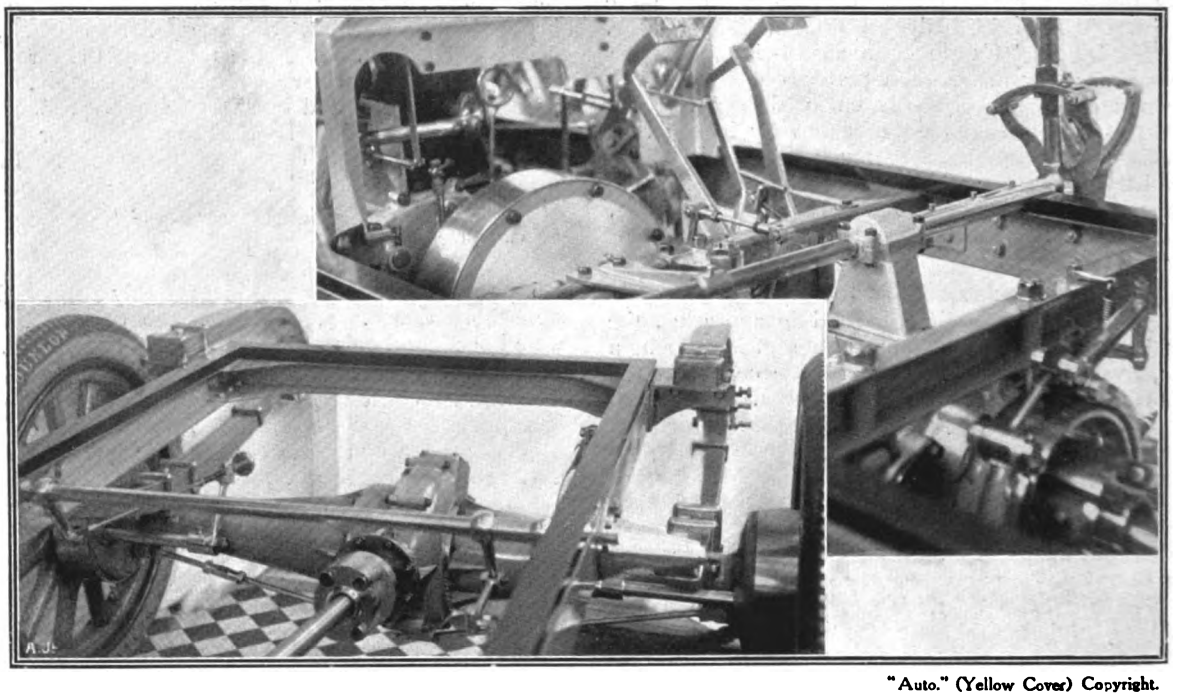


The Royal cars in connection with the war in the Balkans have been generally placed at the disposal of the combatants in the allied armies, and the above 12-15-h.p. Fiat is one belonging to King Nicholas of Montenegro, outside the headquarters at Reika, which in this manner has been doing useful work at the front.

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THE 15·9-H.P. STAR CAR.

FOR the year 1913 the Star Engineering Co., Ltd., of Wolverhampton, are placing upon the market a very comprehensive range of chassis, which gives the intending purchaser the choice of the following four 4-cyl. and one

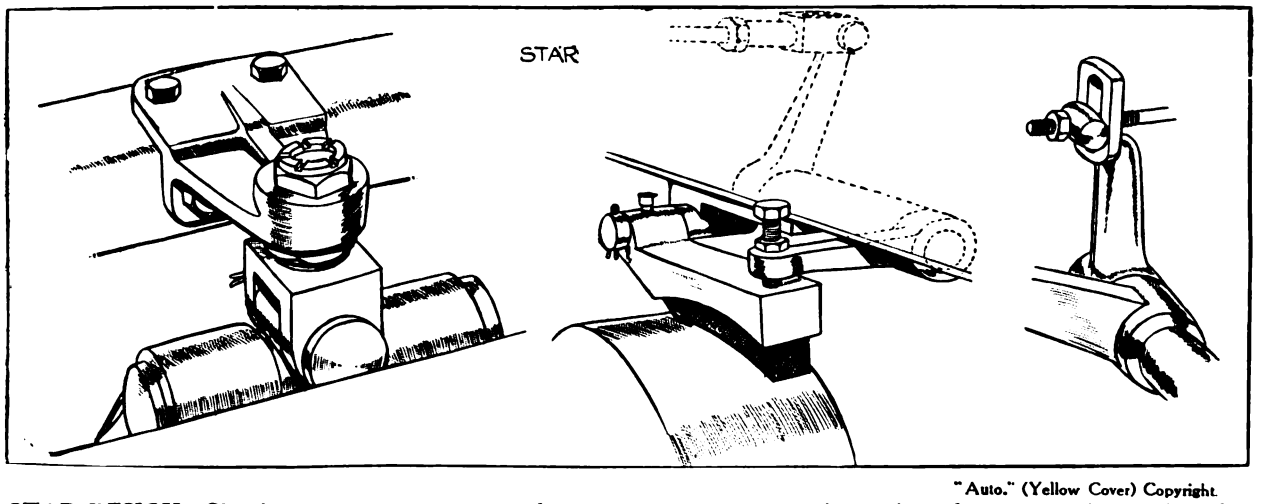


"Auto." (Yellow Cover) Copyright.

DETAILS OF STAR DESIGN.—The central portion of the chassis from the enclosed clutch to the foot brake. In the other view is shown the live rear-axle; note the very neat and accessible brake adjustments.

6-cyl. models: 10–12-h.p. (80 mm. by 120 mm.) chassis, £215, 4-seater £265; 12–15-h.p. (80 mm. by 120 mm.) chassis, £265, 4-seater £320; 15·9-h.p. (80 mm. by 150 mm.) chassis, £300, 4-seater £365; 20·1-h.p. (90 mm. by 150 mm.) chassis, £350, 4-seater £425; and 23-h.p. (6-cyl.) (80 mm. by 120 mm.) chassis, £375, 4-seater £450.

Looking at the above list of chassis, the most interesting feature of it is that no less than three out of the four 4-cylinder models are "fifteen point nines," and, in spite of this fact, they are rated by the makers as 10–12, 12–15, and 15·9-h.p. respectively. The casual observer may well be puzzled by this at first sight, especially when the prices of these three cars are taken into consideration and it is found that they vary to some considerable extent. But the reason for this is very easily found when the three chassis are compared with one another. It will then be realised that the 10–12-h.p., with its 80 by 120 mm. engine is the successor of the light Star car that last year was fitted with a 68 mm. engine. It is a light car pure and simple, with a short wheelbase of 8 ft. 4 ins., a monobloc engine and three-speed gear-box. The 12–15-h.p. is very much the same type of car that won the standard car race



"Auto." (Yellow Cover) Copyright.

STAR DESIGN.—Sketches showing the method of supporting the gear-box, the method of operating the clutch-brake, and the method of adjusting the brake-rods on the 15·9-h.p. model.

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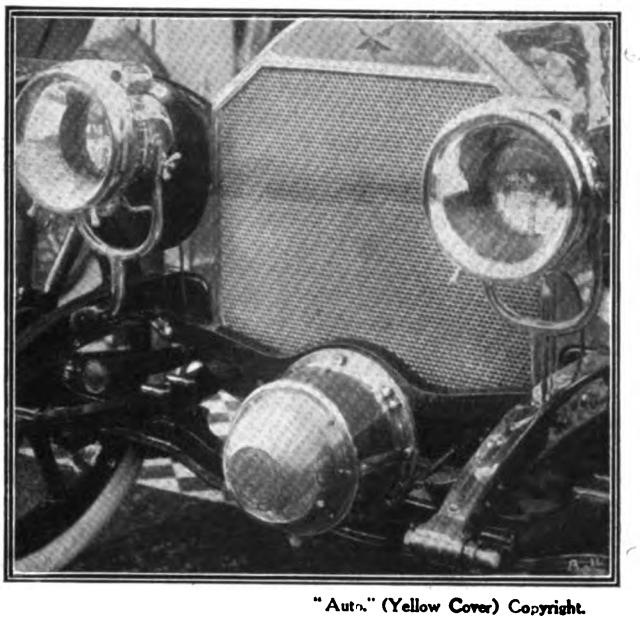
in 1911. It is considerably more substantial, the cylinders are cast in pairs, there are four speeds and a reverse in the gear-box, and the wheelbase is 9 ft. 4½ ins. An entirely new type of chassis is represented by the third model, rated by the makers as 15·9 h.p., which is of the type that has been recently put to the severe test of a 12 hours' record at the Brooklands track, and has rendered such excellent account of itself on this occasion. It is this type for which they expect the greatest demand during the coming season, and for this reason we have selected it as the subject of the following description.

Unlike the other two 50 mm. models, the engine of the 15·9-h.p. Star is a long-stroke type of the most up-to-date pattern, inasmuch as the stroke of the piston is 150 mm. This fact, of course, considerably increases the cubic capacity of the cylinders with the result that the actual power output exceeds the official rating very much indeed.

In its general design, the engine shows all those features which have been characteristic of Star cars for the past few years and have helped to build up that enviable reputation for strength, highest efficiency and speed, for which they are justly famous. The cylinders are cast in pairs, and the two castings are set well apart on the base-chamber so as to allow plenty of room for long bearings. Cooling is by forced water circulation; the centrifugal pump is driven by a silent chain from the rear end of the cam-shaft, a somewhat unusual position but perfectly accessible.

Much attention has been paid to the engine lubrication, which is a forced feed system in which the oil is forced by a pump into the main crank-bearings, and through the hollow crank-shaft to the big-ends. From here it is led up to the gudgeon-pins by copper tubes attached to the connecting-rods. The experience of the manufacturers with racing is emphasized in the fact that

whatever little noise may be set up by the valves. Two noiseless chains are contained in the timing-case; one drives the cam-shaft, the other the magneto, which is mounted on the off-side forward end of the crank-case.

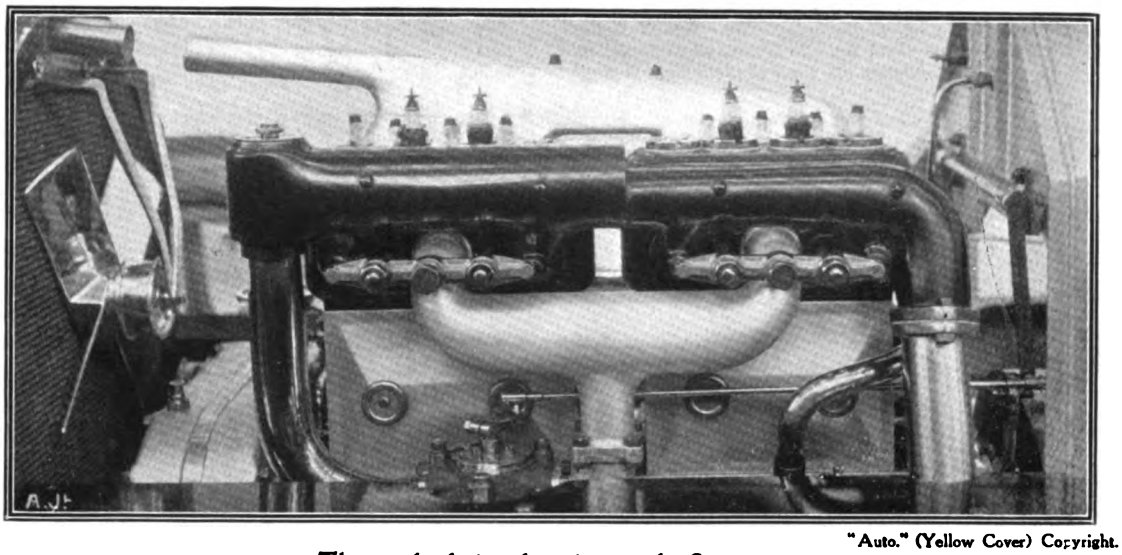


"Auto." (Yellow Cover) Copyright.

The self-starter on the Star car.

The magneto is the latest pattern Bosch H.T. type, is entirely self-contained, and perfectly water and dust-proof.

A White and Poppe carburettor, gravity fed from a tank under the front seats, supplies the explosive mixture. A neat and novel feature is the supply of hot air to the



"Auto." (Yellow Cover) Copyright.

The neatly designed engine on the Star car.

connecting-rods and pistons are drilled for lightness. Light reciprocating parts not only permit of an increase in the piston speed and consequently in the power output of the engine, but a drilled piston allows a much better and more efficient lubrication of the cylinder walls.

All valves are on the near side of the engine; they are of large diameter and provided with adjustable tappets. A pair of substantial aluminium cover plates deaden

carburettor; it is taken from a hot-air jacket cast integral with the exhaust-pipe, and connected to the carburettor by a copper tube. A valve is fitted to the forward end of the hot air jacket by means of which a certain amount of cold air can be admitted according to the weather or climatic conditions and the requirements of the engine.

Another new, interesting, and excellent feature is the leather cone-clutch, which is enclosed, and runs in a bath

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of castor oil. A smooth and gentle engagement of the clutch is thereby obtained under all conditions, and the life of the clutch leather increased almost indefinitely. The large spigot-bearing of the clutch-shaft can be lubricated from outside—a provision which is often overlooked in otherwise well-designed clutches. A double universal-joint is interposed between clutch and gear-box.

Four speeds forward and a reverse, with a direct-drive on the top gear, are provided. They are controlled by the usual side lever on the "gate" system. In connection with the gear-control rods, it is interesting to notice that, instead of the more usual push-rods which project through the wall of the gear-box, and often set up a pump-action which causes loss of lubricant, the forks which actuate the sliding gears are attached to tubes, which slide on guide bars inside the box, so that no grease can be lost by the motion of the change speed gear. Not the least noteworthy feature in connection with this gear-box is its mode of suspension on three points. At the rear end it hangs in a pair of hinges, while the forward end is held by a kind of universal joint bolted to a cross girder of the chassis. The whole of this suspension allows a certain amount of flexibility, which avoids side-strain on the shaft and therefore renders gear changing easy and noiseless.

By a propeller-shaft provided with universal-joints on either end the drive passes to the rear-axle, which is an entirely new design. The axle-casing which supports the load is strongly webbed and well up to its work, while both torque and drive are taken by the springs. Large ball-bearings and thrust-washers are fitted liberally throughout the transmission.

There are the usual two independent sets of brakes. The foot-brake acts on the drum behind the gear-box and is of the so-called locomotive type consisting of a pair of external contracting brake-shoes, while the side lever operates a pair of internal expanding brakes in the rear wheel drums. The hand brake is compensated. Detachable wood wheels of the company's own manufacture shod with 815 × 105 mm. tyres are fitted as standard, and a spare wheel, complete with tyre and tube, is sent out with every chassis.

A long wheelbase, 10 ft. 3 ins., allows a comfortable and roomy body to be fitted, and although the chassis is substantially built of the best materials, its price has been kept as low as £300. The complete car, with four-seater torpedo body, is offered at £365, and as such forms a very attractive proposition for the prospective purchaser of a car at or about this price, for there is no doubt that among moderate priced British cars the Star should be included among the first few of any list that an intending motorist might prepare to assist him in his choice.

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The Unofficial Tyre Trial.

AN official *communique* has now been issued by the Royal Automobile Club regarding the unofficial trial, with four different makes of tyre, which is now proceeding. Below we publish this document in full :—

In May last the Challenge Rubber Mills asked the R.A.C. to conduct a test of Victor, Continental, Dunlop and Michelin tyres.

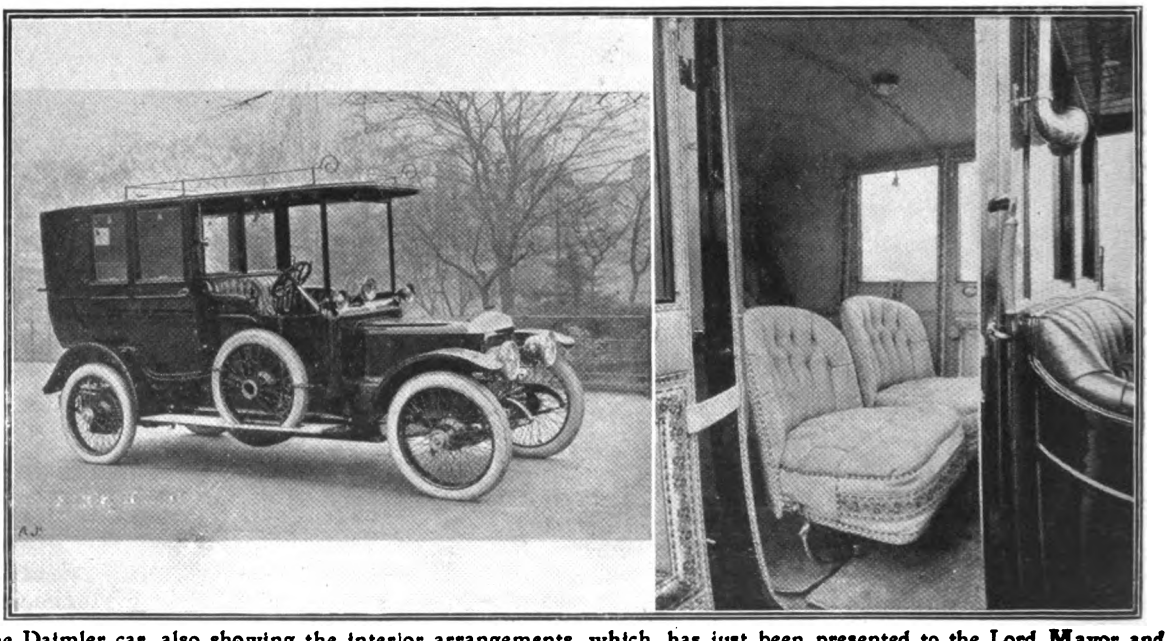
The R.A.C. intimated their readiness to conduct the trial subject to certain regulations to be agreed upon by the Challenge Rubber Mills.

Negotiations extending over some weeks took place between the representatives of the Challenge Rubber Mills and the R.A.C.

It was only at a late stage of the negotiations that it became clear that the Victor tyres could practically only be selected from one stock in this country, whereas the tyres of the other companies could be selected from a large number of depôts all over the kingdom.

A competitive trial of this sort can only be fairly carried out when the conditions of selection of the tyres involved is the same or practically the same for all. In the opinion of the Club that state of affairs did not exist in this case, and the representatives of the Challenge Rubber Mills were at once informed that the Club could not carry out the trial. At the same time the Club expressed its willingness to carry out a test or trial of Victor tyres alone.

A great deal has been said about the joint action of the R.A.C. and the Society of Motor Manufacturers and Traders in this matter. The only reason why the names of these two bodies were coupled in one letter from the Club was in order that the Challenge Rubber Mills might clearly understand that in conducting an unofficial trial they would incur not only the penalties that follow the breaking of the Club Rules, but also such penalties as the S.M.M.T. might inflict.



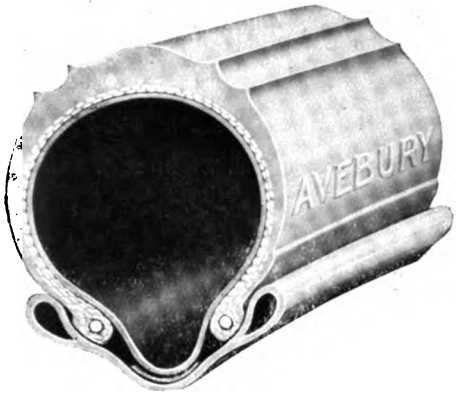
The Daimler car, also showing the interior arrangements, which has just been presented to the Lord Mayor and Lady Mayoress of Birmingham, as one of many tokens of appreciation to Alderman W. H. and Mrs. Bowater, for their services to the city during the last three years.

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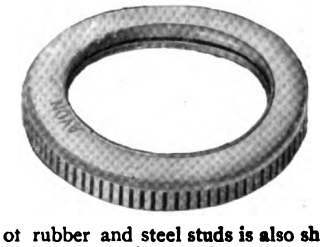
SOME ACCESSORIES AT OLYMPIA.

The Avon India-Rubber Co., Ltd. (STAND 201).

TWO new patterns of motor tyres, as well as the old types, are shown. The new



patterns are an extra heavy moulded grooved tread and a fluted tread, the latter of which is of the flat type, and has a number of fine flutes or ridges. A new combination cycle-car cover with a tread consisting of alternate



bars of rubber and steel studs is also shown, in addition to specimens of retreads carried out by the Company.

Beldam Tyres Ltd. (STAND 191).

THIS firm exhibits tyres of an absolutely original design, the walls of which are composed of V-shaped steel plates, the objects of which are to provide non-skidding properties, to reduce the generation of heat at high speeds and to form a strong wall and bead to the tyre.

Blériot Ltd. (STAND 256).

THE well-known Blériot no-glare lamps and their latest and most improved patterns are on view on this stand, together with a new type acetylene generator. Another attraction is the Blériot dynamo lighting system, the largest sized dynamo of which has an output of 300 watts at 25 amps.

Bosch Magneto Co., Ltd. (STAND 344).

IN addition to a complete range of the Bosch magnetos and dual ignition systems, this firm exhibit plugs and various sundries connected with the ignition. Amongst the latter is a "buzzer," the object of which is to indicate to the driver that the coil side of the dual ignition has not yet been switched off.

Brampton Bros., Ltd. (STAND 253).

A VAST selection of chains suitable for every purpose, from driving the magneto on a motor bicycle to the rear chain-drive of a 4-ton lorry. There are special chains for aeroplanes, and demonstrations of cam and gear-box chains.

Brown Bros., Ltd. (STAND 244).

IN addition to the snubber and valve grinder illustrated last week, Messrs. Brown Brothers' stand is stocked to overflowing with all kinds of accessories, Autoclipse lamps and the Brolt dynamo set possibly being amongst the most interesting.

Captain Rim Co., Ltd. (STAND 187)

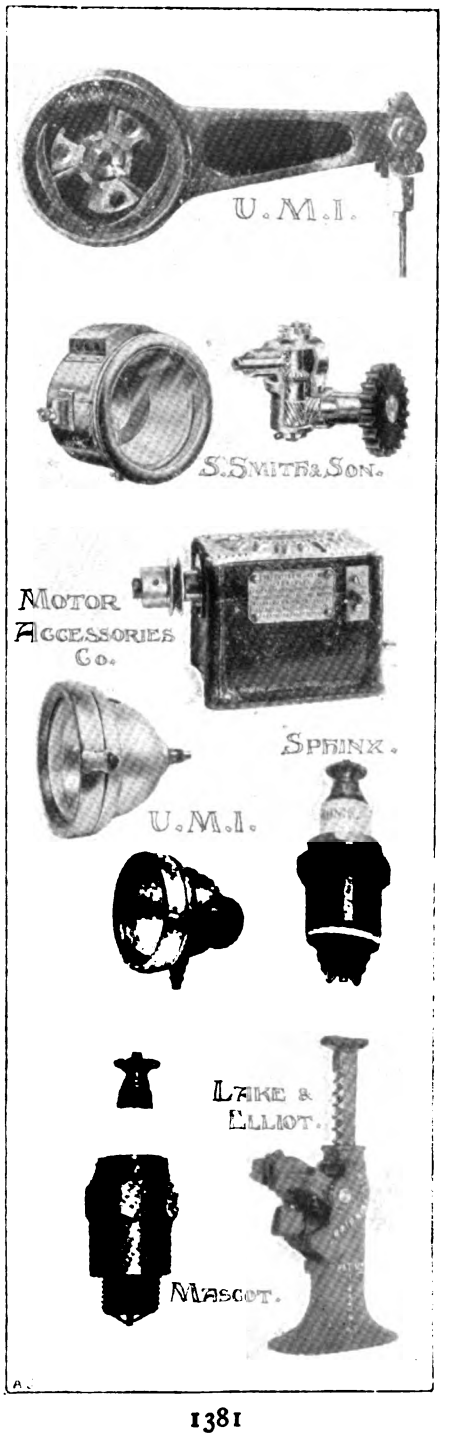
SHOW a full selection of Captain rims and divided rims and the new Captain lifting jack. Another feature is a new type racing rim.

Drummond Bros., Ltd. (STAND 57).

EVER an important item in connection with automobiles is the lathe, a variety of which are shown by the well-known firm of Messrs. Drummond Bros., Ltd., as well as numerous other tools and machinery.

Fenestre Cadisch and Co. (STAND 267).

TWO old friends are found on this



stand in the Alpha B.R.C. lamps, and the Vinet detachable rim, which "a child can fit." Amongst other exhibits is the K.A.P. vibration absorber.

G. O. and N. Trading Co. (STAND 275).

ON this stand is shown A.V. shock-absorbers for front and rear axles, Astra acetylene lamps and vapor carburettors.

Grose, Ltd. (STAND 182).

AMONGST the selection of accessories, Messrs. Grose specialise on tyres and tyre fittings. Among the latter is the Quick-Grip gaiter and all kinds of leather jackets.

Goodyear Motor Wheel Co. (STAND 190).

THE new Goodyear wheels and rims. The number of wheel clips holding the rim to the wheel has been reduced from six to five, whilst only three need be undone to remove the rim. A very interesting exhibit on this stand is the identical Goodyear wheels on which the three Sunbeam cars had such a triumph in the Grand Prix this year.

Hutchinson Tyre Co. (STAND 178).

THIS firm shows for the first time a new range of tyres in inch sizes to fit American rims, and in addition a range of air cushions, which add greatly to the comfort of passengers.

The Klaxon Co. (STAND 275).

A FULL range of these well-known warning signals, including the hand operated types for motor boats and the combined Klaxon and bulb horn, which has achieved such success during the past season.

On this stand is also shown the Edison battery, the interesting points of which are that no acid is used, that neither heavy over charging nor short circuiting do the cell any harm, and that for a given charge its capacity for retaining that charge increases with use.

J. Lacoste and Co. (STAND 205).

PROBABLY the most attractive exhibit on this stand is the Vulcan vulcanizer. In this machine spirit is burnt from a wick in a passage way over the tyre, which flue is left unobstructed until a certain predetermined heat is reached, when the lower end is immediately partially closed, so that just enough air is allowed to keep the instrument at an even temperature till the spirit burns out. The method of closing this flue is so ingenious that by itself it is well worth a visit to this stand. Other articles on this stand are the Triou shock-absorber and the Berkight power pump.

Lake and Elliott, Ltd. (STAND 283).

FOURTEEN patterns of jacks, including the Lake and Elliott garage jack and the still heavier commercial vehicle jack, form a fine backing for a large array of tools and other fittings for a motor car.

Lodge Bros. and Co. (STAND 352).

ON this stand is found the complete Lodge lighting set described in the AUTO. Various headlights and bulbs and the usual colossal sparking plug will indicate the presence of the Lodge ignition outfit. In connection with the lighting set, a newcomer is a two-pin plug attachment having a resistance incorporated in it, making it suitable for connecting the six-volt lighting set circuit to a four-volt ignition accumulator, with the object of charging the latter without damage.

Mascot plugs, made by the Mascot Co., of Rugby, form part of the equipment of several cars on the ground floor, and are also in evidence on the Accessory stands in the gallery. The great point about these plugs is the use of a special enamel jointing which

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is used instead of the usual asbestos packing between the Steatite insulator and the metal body of the plug.

Midland Rubber Co. (STAND 183. ANNEXE).

THE Ajax detachable rim is on view here, as well as all kinds of rubber goods used by motorists.

Michelin Tyre Co. (STAND 165. ANNEXE).

OF course tyres are the main consideration on this stand, but when visitors get tired of examining a vast selection of treads and bolt valves, there are still the Michelin air cylinder and the new jack to be examined.

Motor Accessories Co. (STAND 240).

THE production of light seems to be one of the main features on this stand, seeing that we have an electrical lighting system, and the Scrutiny lamp, also a selection of acetylene lamps and the Turn-over generator. A new comer that should be of interest is the Well engine-starter.

The Motor Supply Co. (STAND 277).

SEVERAL novelties are seen on this stand, including the F.G. spring shackle, one of the simplest and neatest articles of its kind, which has the additional advantage of cheapness, the price for a set suitable for two back springs being 30*s*. The "Kazoo" jack, which works on the ratchet principle and sells at 7*s*. 6*d*., is also interesting.

The Parsons Non-Skid Co. (STAND 213).

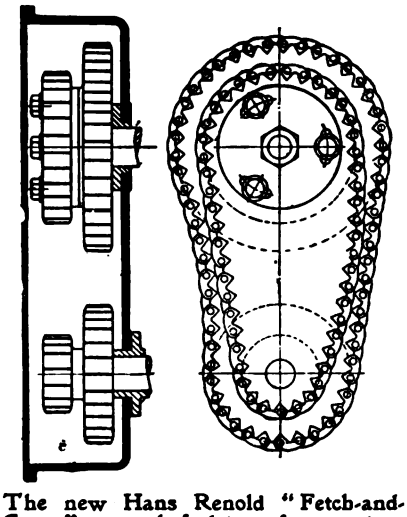
SHOW the well-known Parsons chain, the Parsons plug repair kit, which attracted such a crowd to their stand last year, and a new shock absorber.

Peter Union Tyre Co. (STAND 181).

THE range of five treads sold by this firm is, or should be, inclusive enough to suit the most captious. Peter Union in pneumatics, range from plain rubber through reinforced, three-ribbed and rubber-studded to steel-studded.

Hans Renold, Ltd. (STAND 282).

As readers are aware, this firm specialises nowadays on silent cam-shaft drives. For this Show they are bringing out a new type

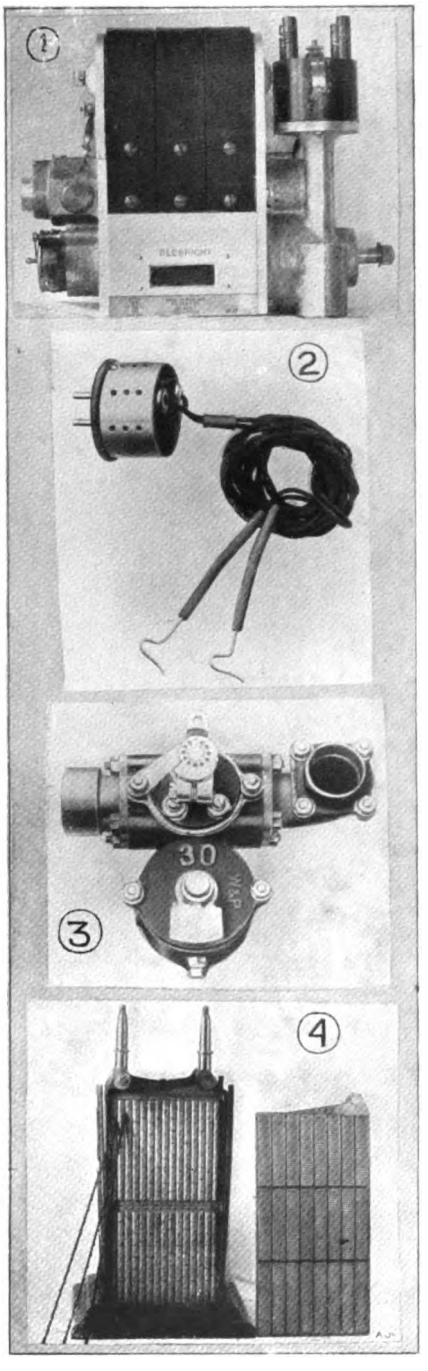


The new Hans Renold "Fetch-and-Carry" cam-shaft-drive, for engines where adjustment of driving-chain is difficult.

of chain-drive, to be known as "the fetch and carry," for engines where no adjustment of the cam-shaft is possible.

G. T. Riches (STAND 214).

CARBOTRON stoves, the Facility rim and the Orno safety starting handle are found amongst the exhibits on this stand. Special interest attaches to the new Ripidion sparking plug. This plug belongs to the self-cleaning variety, the principle of action being that on the inlet stroke air is drawn in through the hollow central electrode of the plug at a sufficient speed to blow away any carbon that may have formed between the concentric electrodes. On the compression and explosion strokes a ball valve in the body closes and so prevents loss of compression and subsequent decrease in power.



1. The Seebright lighting dynamo, shown by the Simms Magneto Co., Ltd. 2. The new Lodge 2-pin plug for charging 4-volt accumulators from a 6-volt dynamo. 3. The White and Poppe variable-jet carburettor. 4. The plates of the Edison accumulator.

Rotax Motor Accessories Co., Ltd. (236).

THIS firm specialise on the Rotax Leitner dynamo lighting set, in which several improvements have been made during the past year. A set of swivelling headlights is also on view, in addition to the usual large collection of lamps, horns and other details.

Rushmore Lamps, Ltd. (STAND 335).

AN innovation on this stand is a new dynamo lighting set, while in connection with the acetylene illuminating business, an electric igniter, so designed that the head lamps may be lit from the dash, will be shown.

J. Sankey and Sons, Ltd. (STAND 203).

THE new Sankey steel twin detachable wheel is shown for the first time, as well as the Sankey detachable wheel.

Seabrook Bros., Ltd. (STAND 325).

A NEW American speedometer, the Corbin, which is of the centrifugal type, the recording needle being operated by the governor action of four rotating bob-weights. It has a black dial with white figures and an odometer registering to 100,000 miles.

Skefko Ball Bearing Co. (STAND 347).

S.K.F. self-aligning and double row ball-bearings, the point of which is that no damage is caused should any of the shafts running on these bearings be out of the true. Also a selection of thrust and plumber blocks.

Simms Magneto Co. (STAND 293).

SPECIMENS of Simms magnetos and the Seebright combined magneto and dynamo lighting outfit. In this outfit, two armatures run one above another, the bottom one being the Siemens type for the magneto, and the upper one being a drum-wound dynamo armature for supplying lighting current. The method of controlling the output of the dynamo is very neat, and the mechanism is all enclosed in the casing of the machine. A neat switchboard of aluminium contains a magnetic type of cut-out.

S. Smith and Son, Ltd. (STAND 324).

A NEW type of shock absorber is shown on this stand, viz., the Oda-Smith, the point of which is that unlike any other shock absorber on the market, it yields to lateral strains, allowing one spring to overlap the other by a small amount, without altering the alignment and parallelism of the shackle pins. Goldenlyte head lamps and the Smith lighting set will be important items on this stand.

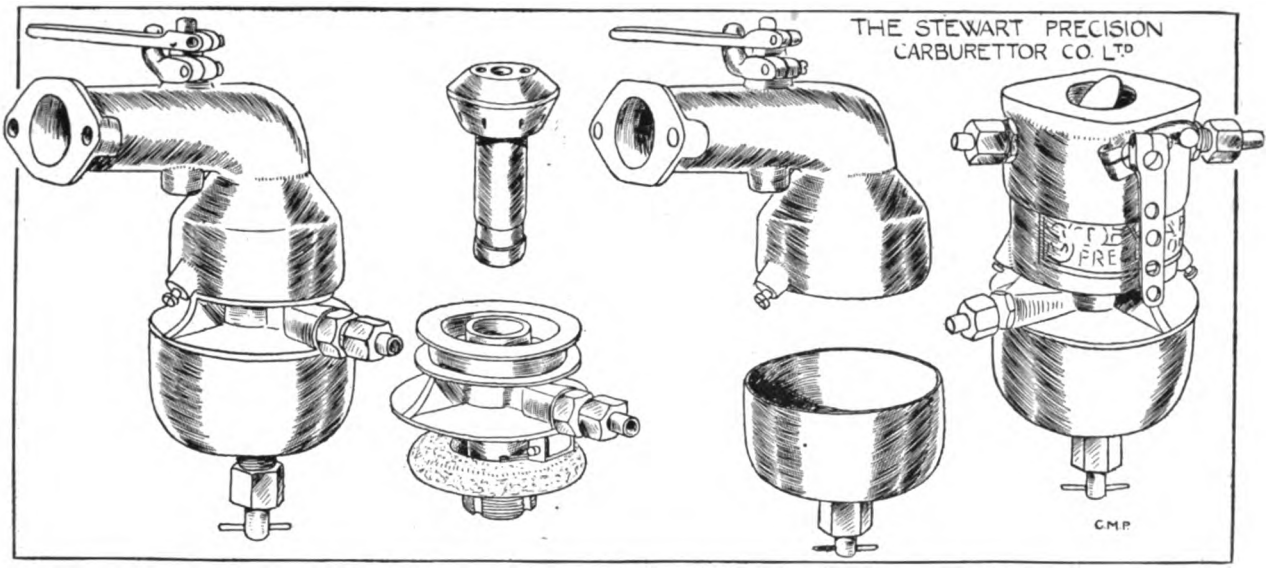
Sphinx Manufacturing Co.

THERE will no doubt be plenty of opportunities of examining Sphinx plugs, which are made by the Sphinx Manufacturing Co. of Birmingham, on a selection of chassis at the Show. In their new price list this firm illustrate some very interesting goods, with not a few novelties, such as the plug-cleaner, illustrated in the AUTO. a short time ago. This, amongst others, will be found on some of the general accessory stands.

United Motor Industries, Ltd. (STAND 251).

THE D.W.F. ball-bearing exhibit is one of the most interesting shows in connection with these accessories that has ever been staged at Olympia. A ball bouncing table, and a ball gauging-machine will be in operation all day, as well as the water wheels, one mounted on D.W.F.'s and the other on plain bearings that caused such amusement at the last Show. Shock absorbers and the U.M.I. spring-controller will appeal to those who suffer from bumpy riding, and the All-4-Jack to those who complain that their tyres spend about 80 per cent. of the time holding up the heavy weight of a standing car in the garage. L.M. sparking plugs, and the Magician Dynamo lighting set by no means exhaust the resources of this stand.

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THE STEWART PRECISION CARBURETTOR.—Sketches illustrating details of this very simple and effective device, which can be readily fitted to any engine that is not giving satisfaction under its present conditions.

C. A. Vandervell and Co. (STAND 234).

THE C.A.V. lighting set, which was described in our pages last week, is, of course, the *pièce de résistance* at this stand, but the many types of electric lamps and fittings, and especially the new C.A.V. fog-discs for fitting into the front doors of existing lamps, are well worth inspection.

Vacuum Oil Co., Ltd. (STAND 235).

MANY a gear-box has been ruined by using unsuitable lubricants, and many a motorist has viewed with dismay the condition of his gears, although he has superficially taken all precautions, keeping the gear-box well supplied with grease. It is not generally known that if a suitable lubricant is not used the gears will "track," or in other words, will displace the grease and leave a clear channel for them to revolve dry, with disastrous results. To obviate this the Vacuum Oil Co. manufacture a thicker than oil lubricant, and to prove its efficiency, the Company show it working in a gear-box on their Stand at Olympia.

For very noisy gears, they also market a transmission grease of heavy grade, which from practice has been found to have a quieting effect in the running.

Warland Dual Rim Co., Ltd. (STAND 194. ANNEXE).

THE first thing to catch the eye is the new Warland-Sankey combination wheel, besides which there is the latest type of Warland rim fitted to wood and steel wheels and also to wire wheels.

White and Poppe (STAND 323).

THE usual fine collection of engines, parts, and the W. and P. carburettors will be found on this stand. Those who have simply heard that this carburettor is remarkable in having a variable jet would do well to call at the stand and examine it in detail.

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are requested to slow through Altrincham and Northwich.

LANCASHIRE.—Improvements are still in progress at Little Marton 3½ miles east of Blackpool, full width, in very rough condition near the windmill, lights at night; alternative route *via* Moss Side and Lytham to Blackpool.

Members are advised to drive slowly through Garstang, 10¾ miles north of Preston.

Members are specially requested to drive carefully through Poulton-le-Fylde and district.

EAST.

NEWMARKET DISTRICT. — *Royston-Cambridge Road.* — Care should be taken through the village of Trumpington and between Trumpington and Cambridge.

Royston-Newmarket Road.—Water likely to be out under the railway arch at Pampisford Station.

LOWESTOFT DISTRICT.—Care is necessary at the level crossings in and around Beccles, as the wood badly needs repairing between the lines.

Ipswich-Lowestoft Road.—The bridge over the river at the northern approach to Wickham Market has collapsed and the road is impassable; alternative route from Lowestoft on reaching the five cross-roads, take right hand road and bear to left. Cars going to Lowestoft from Ipswich turn to left in Wickham Market across the Green and then right.

SOUTH.

BRIGHTON ROAD.—Control likely to be working at Burgh Heath and also at Smitham Bottom, between here and the 10-mile limit, Croydon, also at Purley at night, and on the road to Wallington.

LONDON DISTRICT.—On account of timing operations, special care is necessary at:—Regent's Park Road, N.W.; near Church End Station, Finchley, Golder's Green, between Redcliffe Gardens and the Boltons, Earl's Court Road, Victoria Embankment, Albany Gate, Regent's Park, Mitcham, Morden, Sutton, Banstead, Croydon, Purley, between Wimbledon and Ewell, Hounslow-Staines, Hounslow-Colnbrook, Harlesden, Maida Vale, Highgate, Holloway, Lewisham, Sudbury to Harrow.

MIDDLESEX.—Control likely to be working on the main Pinner road near Eastcote.

SOUTHAMPTON ROAD.—Controls working at night through Egham. Foundations being laid on the causeway between Staines Bridge and Egham.

SOUTHAMPTON DISTRICT.—Tram-lines under re-construction from the junction of Commercial Road and the London Road, and also in Hight Street, Shirley, and at Waterloo Road, Freemantle. Southgate Road, Winchester, is closed to traffic, alternative route turn right at Southgate Corner, on leaving Winchester for Southampton Road, then first to left.

SURREY.—*Portsmouth Road.*—Flashlight controls are working between Kingston and Esher. Roller at work full width 1½ miles north of Guildford unrolled metal during the day, lighted at night.

Eastbourne Road.—Special care is advisable as a control may be working near Kenley Police Station, and the gas works, Whyteleafe.

SUSSEX.—Members are requested to observe the 10-mile limit at Uckfield.

WEST.

BARNSTAPLE DISTRICT.—*Barnstaple-South Molton Road.*—Under repair between the 5th and 6th milestones at the top of Kerscott Hill, full width for about 400 yards.

Barnstaple-Bideford Road.—Re-metalling between the 6th and 7th milestones, full width for about 300 yards.

SHREWSBURY DISTRICT.—*Holyhead Road.*—Re-metalling full width near the 6th milestone from Shrewsbury.

Hereford Road.—Re-metalling full width at Meole Brace.

SOMERSET.—*Sparkford-Queen Camel Road.*—Re-coating and rolling for about a quarter of a mile; alternative route through Weston Bampfylde.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, W. M. LETTS, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.

Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. A. Holmes, deputy-chairman; Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee: Messrs. Tipper, Moores, Tyler, Emmerson, Rawson, Adey, Holland No. 2. Mr. Darmaros and Mr. Shaw were doing duty at the Motor Show.

Application for legal aid was made by a new member, not yet in benefit. The committee considered the case, and agreed to assist the member in the interests of chauffeurs and the public. The case being a very unusual one the secretary was instructed to make the necessary inquiries before placing the matter in the hands of the solicitor.

Correspondence was read from the Editor of the *Chauffeur*, Mr. Hands, of Leicester, Mr. Appleton, and Sir Merton Russell-Cotes.

The meeting was then declared open, and a fair sprinkling of members discussed the question of representation in provincial towns, the question being introduced by the secretary.

Mr. Davies (Suffolk) brought forward the question of lapsed members being allowed to wear the badge. This created a general discussion, which was eventually left for the committee to deal with.

Mr. H. Burnett (Arundel) suggested that the committee should arrange for a ten days' campaign with a view to obtaining members. He felt sure it would be a success. Numbers were wanted, if only for the purpose of approaching Parliament.

Mr. Cates said the suggestion was a good one, despite the fact that a great many members were being made. He thought, however, that the matter should not be taken up until the arrangements regarding the Employment Bureau were decided. The question was left for the committee to deal with.

Mr. W. Bradley (London) discussed the need for reform as regards bedroom arrangements. The place was full up, and if it were possible there should be more rooms available. The secretary reported that he had five addresses where lodging could be obtained by members within easy walking distance of the garage. After considerable discussion it was left with the secretary, who was instructed to go fully into the question, and report to the committee at the next meeting.

Mr. Constable brought forward the necessity for appointing more than one N.S.C. garage in each town. While touring he had run across two or three decent garages who were very willing to become honorary members, but were not eligible owing to there having been another garage in the town.

The Chairman explained that if the sign had been open to every garage in provincial towns, no one would have wanted it, but as it meant increased business to the holder, the project had been more than successful. Several members having spoken on this question, it was referred to the committee for consideration. The meeting closed at 11 o'clock. A go-as-you-please sing-song, with Mr. Darmaros presiding at the piano, brought midnight and closing time.

The cup presented by the Shell Co. to the Society for competition by Chauffeurs and Garage Clubs has been on view at the Motor Show, and created a deal of interest. Any Chauffeurs' or Garage Club qualified under the conditions of the contest should notify the secretary of their wish to compete.

Conditions of "Shell" Cup Contest.

1. That only properly constituted Chauffeurs' and Garage Clubs of one year's standing shall compete.
2. Mr. J. Cates, Mr. A. J. Allison and Mr. H. Rawlings to judge the status of clubs.
3. Club team to consist of four players, who shall be chauffeurs or garage employees of six months' membership.
4. After the entries have been received, the names shall be placed in a box and drawn by some disinterested person. The first two names drawn shall contest for the cup. The contest shall be decided by drawing again from a box containing the names of the two clubs and six blanks, the first club drawn to have choice of place.
5. The winners of rounds to draw again as aforesaid, the deciding rounds to be played on the N.S.C. tables.
6. The club winning the cup to hold it in trust for the N.S.C. until the following January, when it shall again be contested for; a club winning three years in succession to become the owners.
7. No charge to be made by clubs for the playing of the handicap games.
8. Any disputes to be submitted to the undermentioned Mr. J. Cates, Mr. A. J. Allison, and Mr. H. Rawlings, who shall have the power to ask the decision of an independent arbitrator.
9. Each game shall be 250 up. The score in each game shall be totalled, and the team scoring the highest number in the four games shall be declared the winner.

Accepted for Membership.

F. W. Rogers, Leominster	Alfred E. Wicks, London, S.W.
Anton Hirsch, Penrith	Alfred Maxlow, London, S.W.
William J. Cabena, London, W.	George W. Cady, London, S.W.
Percy J. Harriman, Leicester	

Applications for Membership.

Herbert G. Wheeler, Inverness	William E. Bancroft, Totteridge
Charles A. Smethers, Wimbledon	William J. Harris, London, S.W.
Arthur Caddy, Bristol	A. W. Knight, Kensington, S.W.
Henry C. King, Bow, E.	John A. Harrison, Sheffield
T. Lawrence, Belgravia, S.W.	James W. Tuck, Upton Park, E.
Tom D. Brook, Fulham, S.W.	Lawrence E. Cross, Oxford
Harry Bryant, Kensington, S.W.	E. F. Randall, Co. Cavan, Ireland
W. C. Rackliffe, Earl's Court, S.W.	Sidney Rumble, Paddington, W.
J. T. Newnham, Kilburn, N.W.	T. Lamborn, Whitchurch, Oxon
A. V. Powell, Shepherd's Bush, W.	D. Hall, Merton Abbey, S.W.
James T. Nash, Earl's Court, S.W.	Joseph Hands, Leicester
Arthur H. Durrans, Birmingham	Thomas A. Weston, Brighton
F. J. Plumstead, Earlsfield, S.W.	Charles T. Terry, Sunningdale
G. Giddins, Shepherd's Bush, W.	George Cowland, Reigate
John Cahill, Plymouth	F. C. Gildersleve, Wembley, Midd.
Arthur E. Mason, Bayswater, W.	John M. Jackson, Langholm
Reginald Fleet, Newbury	Richard A. Bean, Vauxhall, S.W.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2s. 6d. Subsequent subscriptions, 2s. per month. Payable in advance on the 1st of each month. Badges, 1s. 1d., post free. Members may pay yearly 21s., or half-yearly 10s. 6d., payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

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Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

99.

TEMPORARY SUBSTITUTE FOR LOST HUB-CAP.—Strolling through a garage the other day I came across a car whose driver had lost one of the rear-wheel hub-caps, and had rigged up a substitute that struck me as well worthy of being more widely known on account of its simplicity and efficiency. It consisted merely of the lid of a cocoa tin being placed over the open hub and being held in position by four wires tied around spokes. To make the cap as good a fit as was possible under the circumstances, a strip of ordinary cardboard wound around the hub was used as packing. The chauffeur had painted the tin and the wires to match the colour of the wheel so that the whole affair was hardly visible and did not in the least spoil the appearance of an otherwise well turned out vehicle. I was rather surprised to find that a man who apparently took great care of his car should run about with such a makeshift for a number of weeks, but upon asking him about it I was told that the car, being of foreign manufacture, he had considerable difficulty in obtaining a new hub cap.—*J. Ermyn Street.*

100.

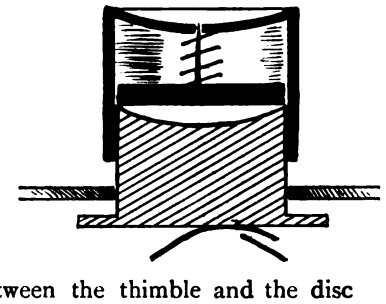
HOW TO PREVENT CATCHING COLD. — At this time of the year it very often happens that chauffeurs are ordered out for what is intended to be an afternoon's run; a more or less short ride between lunch and tea-time, and when the weather is fine there is no occasion for him to put on his heaviest coat. But it often happens, and I regret to say it has happened to me only last week, that you do not return as early as you intended. On this occasion I did not come back until much later in the evening, owing to a succession of tyre troubles, that as we all know so well will insist on catching you unawares. On my journey home I had first a puncture, which I got over by putting on the spare wheel, and soon afterwards a burst. I was therefore compelled to take off the cover of the punctured tyre and put it on in place of the burst one together with the spare tube I always carry. It was getting late and "my lady" wanted to get home so I hurried up as much as I could and got rather hot in the process.

After all was well again I drove home much faster than I would have done in the ordinary way, with the result, that not having my heavy coat with me, I caught a very bad cold in the chilly evening air. If I had only thought of it at the time, I could have prevented that quite easily by wrapping a newspaper round my chest under the waistcoat. This, as I know from previous occasions, is a very excellent chest protector, and keeps you warm under the most adverse conditions, but unfortunately I forgot it at the time and am still paying the penalty. My reason for sending the above very old and well-known dodge for your page of Chauffeur's Experiences is simply to give other chauffeurs a seasonable reminder to be aware of their health at this time of the year. We are all too liable to overlook the obvious, but if such things as this are brought before us from time to time we are more likely to remember them when occasion arises. Besides, there may be a few, and there are always novices in our profession, who may never have heard of it and to whom it may be very useful.—*F. E. Lane.*

101.

HOW TO STOP UNAUTHORISED PERSONS WORKING THE KLAXON.—It often happens that, when I have to leave my car outside a shop without anyone to look after it, some urchins come along and take a delight in blowing the horn, and lately, since I have fitted a Klaxon, they are pressing the button, which does by no means make for quietness. The roar of the Klaxon is particularly objected to by people in a certain neighbourhood, where I call almost every afternoon. Neither kind nor rude words had any effect on the boys, who, after all said and done, will be boys, so I thought of a way of stopping their tricks once and for ever.

With this object in view I designed and made the little "trap" shown in the sketch. It is very simple to make, and consists in the main of a thimble that in its outer shape resembles the press-button of the Klaxon. It is, however, slightly larger, so that it can be slipped on top of the latter. Inside this thimble is a pin soldered to a disc and projecting with its point through a hole in the centre of the thimble. A little light spring is interposed between the thimble and the disc carrying the needle, and two drops of solder prevent the disc from falling out of the thimble when it is carried in the pocket.



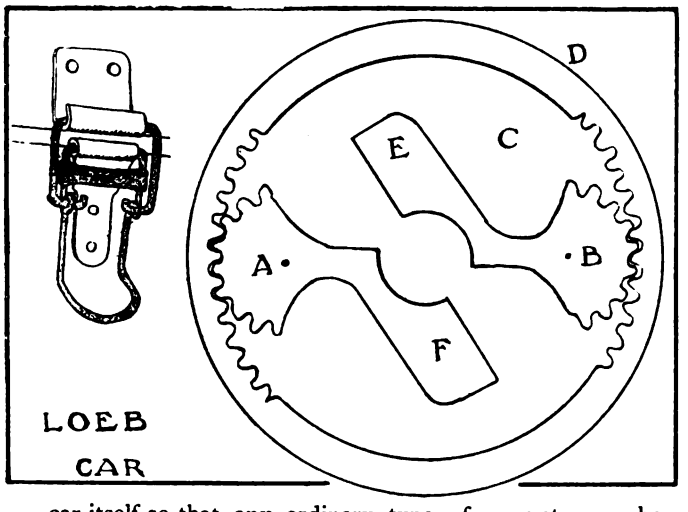
The way of "setting" this trap is obvious. All you have to do when leaving your car is to put the "trap" over the push-button of the Klaxon. It is hardly noticeable, and when any unauthorised person tries to press the button, he is severely stung by the protruding needle, and only gets what he deserves. You would hardly believe how quickly this trap has cured the youngsters in a certain neighbourhood from playing about with my car when I am not looking.

Take care not to use a brass pin, but one made of steel, which is less likely to do the boys an injury.—*Hispano-Suiza.*

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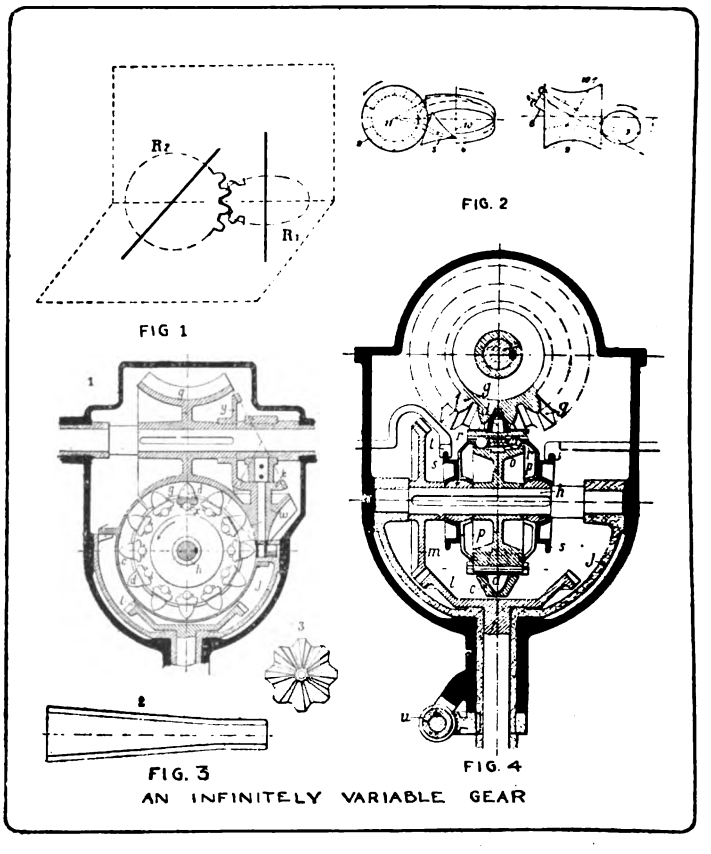
FOREIGN MISCELLANY.

The Loeb car is of German origin and is equipped with a silent Knight engine. A particularly neat and workmanlike detail is the toggle arrangement whereby the undershield is attached to the frame. Another point deserving attention is the magneto drive; this is of the variable advance type, but the drive is incorporated in the



car itself so that any ordinary type of magneto can be used in conjunction with it. The automatic advance device itself consists of a disc, C, driven from the engine in the usual way, to which are pivoted two segments of pinions at A and B, the counter-weights, E and F, being solid with the latter. The pinions engage with the internal teeth cut in the ring, D, which is attached to the magneto. Centrifugal force will cause the weights, E and F, to fly outwards, which will result in the armature being advanced relatively to the position of the cranks.—*Automobil Welt.*

An infinitely variable gear.—If two gear wheels are placed with their axes at right angles (Fig. 1) so that the line passing through their centres also goes through the point of intersection, then one of the wheels can be so placed with relation to the other, that the teeth of the latter when rotating pass through one of the spaces between the teeth of the former. Now, suppose the axis of the driving wheel, R^1, to be tilted slightly from the vertical; by giving the teeth appropriate shapes the result would be that if one of the teeth of R^1 entered one of the spaces in R^2 the rotation of R^1 would cause R^2 to move through a small angle about its axis, the amount depending on the inclination of the axis of the driving wheel. It is evident that if this inclination became 90°, *i.e.*, if the two axes where parallel, the motion of the driving wheel would be transmitted unaltered to the driven wheel. This is the principle on which the gear before us is intended to work, but a difficulty arises in that it might happen that the teeth of the driving wheel met with a *tooth* of the driven one instead of a gap. To overcome this objection, the teeth of the driving wheel must be movable so that they may be guided into the right place, but once there, they must become rigid so as to transmit the drive to the driven wheel. This is accomplished by fixing the studs, *d*, Fig. 4, on which the teeth, *d*, are free to rotate, to the slides, *e*, the locking arrangement of which will be dealt with presently. The guiding of the teeth takes place by means of a grooved path, *c* (also shown in inset 2), the cone, *w*, which has (*see* inset 3) teeth cut on its surface, radiating from its apex and the teeth of the driven wheel, *g*. The shaft, *h*, of the driving wheel runs in bearing solid with the casting, *j*, which can be rotated through a certain angle by means of the bevel wheels, *m* and *l*, and the worm and wheel, *u*. The cone, *w*, rotates on an axis which can swing about the axis of the driven wheel, while its other end is provided with a bearing at right angles, in the casting, *j*. The bevel wheels, *y* and *k*, provide that the teeth of the cone always correspond with the teeth of the driven wheel, *g*, while the lower bearing ensures the constant presence of the apex of the cone at the place where the grooved path, *c*, terminates; the guided path of the teeth, *d*, is therefore never interrupted, whatever the inclination of the driving wheel. The locking of the teeth is accomplished by means of the steel balls, *x*, which run on planes inclined outwards and upwards, and which are thrust outwards by the small springs interposed between them. To accomplish the release of the teeth except when actually driving the wheel, *g*, two discs, *p*, with turned up edges, *r*, are employed. These discs are mounted on spherical bearings, and by means of the guide rings, *s*, and the forks, *t*, their rims are made to approach when diametrically furthest away from the driven wheel, and to recede when close to it; the result of this is that during part of the time the locking balls are pressed inwards,



whereby the slides are released and free to slide, while they become rigid when approaching the driven wheel. Fig. 2 gives a diagrammatic view of the gear, the axis of the driving wheel being tilted through an angle equal to *g*. Here 4 is the grooved path, 3 the guiding cone, 9 the driven wheel, and 11 its axis, 6 the driving wheel, and 10 its axis.—*Technique Automobile.*

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CORRESPONDENCE.

Car Design at Olympia.

SIR,—I really must write and congratulate you on the excellence of the article on "What a Chauffeur Expects to See at Olympia," in your issue of the 9th inst., and I hope car owners will insist on the suggestions therein, and that manufacturers will fall in line towards the improvement of the breed of the British-built car and a general reduction of running costs.

Defects in design are repeated year after year, and it may suffice if for the present I point out two or three in the hope that in time the ventilation of these defects will lead to their elimination.

So far as my experience goes, the chief obstacle to healthy improvement of the British-built chassis is the constitution of the average board of directors, whose knowledge, and experience does not seem to qualify them, even if sufficiently energetic, to discern the difference between the really capable and the mere sycophant. The man who specialises in "saving his skin" is seldom of real good to his employers; besides, he wilfully prevents ability and character reaping their due reward, to the financial profit of the concern, and to the creation of an effort mutually to the benefit of the concern, but he departs not into originality, but more or less slavishly copies continental practice to the sure but slow decay of the concern.

Two prominent defects, in my opinion, are:—

In connection with the engines, the want of proper provision for the end thrust when the clutch is held out, as it should be while coasting; this causes after a time a rapid bell-mouthing of the big-end and little-end bearings of the connecting-rods, and the crank-shaft moving fore and aft it will be seen how detrimental this is to the maintenance of the connecting-rod bearings in a good condition. The thrust is not a light matter at all, as anyone who has had experience of the effort required to compress a clutch-spring well knows.

The second defect, and an instance of slavishly copying continental practice, is the connection of the propeller-shaft casing which forms a right angle extension of the back axle by means of a hinged fork to the frame or gear-box about the centre of the chassis. The mistake is not the fork which, of course, is and should remain free to swivel on the cardan-shaft casing, but the means of hinging it to the rigid member; it is quite common at the Show to see the extremities of the forks drilled at right angles, that is, parallel to the back axle, and pins or bolts inserted allowing the fork merely vertical movement about the axis of these pins. There is no provision, with the brilliant exception of the Renault, for the lateral displacement of the rear axle relative to the frame, as is always the case when rounding a corner particularly at speed, to say nothing of the more frequent lateral displacement due to uneven road surfaces.

Perhaps the big firms and big engineering firms will defend this, in my opinion and experience, bad practice.

Even if you have in your excellent articles of the various chassis hinted at or even dwelt on these points, I think it may be for the good of automobilism that you publish this communication.

Sydenham. A. E. PARNACOTT.

A Smash and Wire Wheels.

SIR,—The enclosed photograph forms an excellent illustration of what a modern motor car stands with relatively little damage to itself or passenger.

The Lanchester car was descending the Coventry side of Meriden Hill, which is provocative of high speed, and espied issuing from a cross-road a test car; to prevent collision the chauffeur elected to drive his car into a 9-in. brick wall. As a result no one was much hurt, the lamps were smashed, the radiator damaged, and the front axle had to be replaced, the Rudge-Whitworth wheels were only knocked slightly out of truth. This is probably due to two causes: The car struck the wall nearly at right angles and wire wheels are extraordinarily strong against such blows, and the front suspension of the Lanchester car is of a yielding nature, which reduced the violence of the shock to the wheels and also to the rest of the chassis.

Although it is difficult to lay down any hard and fast rules about impending collision, it is at least worth knowing that with a properly equipped car a brick wall can be charged with impunity so far as passengers are concerned.

There was, by the way, a demonstration of the same thesis with regard to a stone wall in the early days of the Tourist Trophy Race, when the West car demolished one side of Sulby Bridge, and in this instance with even less damage to the car.

RUDGE-WHITWORTH, LTD.

Cycle-Cars.

SIR,—I have come to the conclusion that a very large proportion of the machines described in other journals as cycle-cars are not within the official definition (chassis weight under 7 cwt. and engine displacement not over 1,100 cc.).

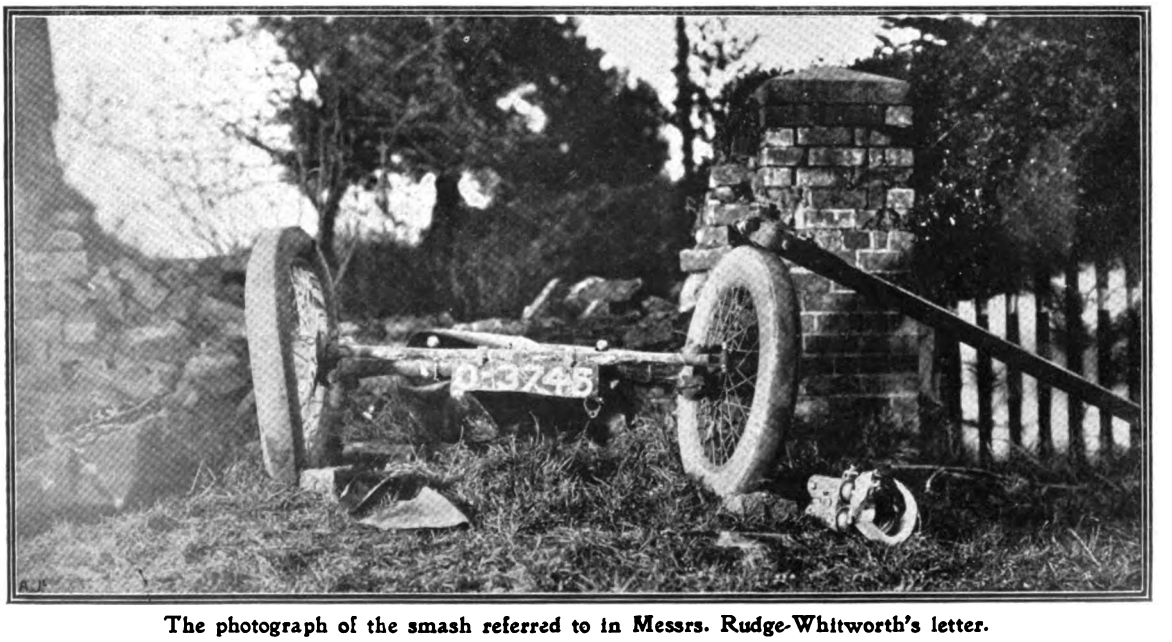
In plain language the word cycle-car is rapidly becoming another name for a freak. The one object of this letter is to ask your co-operation in the interests of all concerned, to encourage a general recognition of authority as you have done.

My conviction is that the sales will be enormous of those cycle-cars, and those alone, which prove to be quite economical and not troublesome, and probably through their contribution to the evolution of the future car the very defence of the Britisher against the foreign manufacturer.

October 10th. A. EDMUND PARNACOTT.

Vauxhall Challenge to Sunbeam.

SIR,—In regard to the above from the Vauxhall Company, we fail to see why we should accept this challenge. We met the Vauxhall cars a very short time ago at Dieppe, where they had every chance of showing what they could do against the Sunbeam team. We have beaten all their records at Brooklands, including the ones established by the 80 by 200 and 90 by 120; both engines are of bigger capacity than those used by the Sunbeam Company.



The photograph of the smash referred to in Messrs. Rudge-Whitworth's letter.

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Moreover, our board of directors do not approve of one manufacturer racing against another, because the records at Brooklands are there to be beaten by all comers, and it is quite open to the Vauxhall Company, or any other manufacturer, to put a car on the track and lower the records, which is done in a public spirit and not as one manufacturer competing against another.

For THE SUNBEAM MOTOR CAR CO., LTD.,
T. CURETON, Director.

Victor Tyre Trials.

SIR,—I read with much interest the letter of Lord Tenterden in your issue of November 2nd, and am quite in accord with the views expressed by this gentleman.

I should like to add that I think it deplorable that the R.A.C. should have lost yet another opportunity of giving effect to its *raison d'être* by declining to proceed with the tyre test which was first undertaken by them.

It certainly appears to me that the motorist to-day is ringed about with what are in effect trusts and combines all having the same object, namely, the inflation of the prices of everything pertaining to the car.

In the matter of tyres—by far the most important item in motor up-keep—we find all the tyre firms with the same prices to a penny for every size and type of tyre. When one firm raises prices the others follow. I understand, too, that approximately the same discounts are given by these tyre firms to agents. Further, the motorist's experience has shown him that in the event of a complaint being sent to the manufacturer of the premature breakdown of tyres, he cannot expect to get other than stereotyped answers: "You have run the tyre with insufficient air pressure," or, "The damage has been caused by brake action," &c. &c., *ad nauseam*, are examples.

We have practically another combine in petrol. There is supposed to be a bitter rivalry between the petrol firms, but prices are practically the same.

Send a car for repair or overhaul, and what costs the repairer shillings is charged to the motorist as pounds. Similarly, the charge for accessories is out of all proportion to actual values. Even in hotels, where the cuisine is sometimes a horrible thing, it is generally extortion again. On every side the motorist is regarded as fair game and bled to the utmost limit of his purse.

What an opportunity for the R.A.C.; but instead of taking advantage of it we find it working with the Trade Society and threatening the only independent firm plucky enough to defy the combine with the direst penalties because it ran a Tyre Test, which must provide valuable information for the motorist, and a test, too, which the R.A.C. itself first undertook and then declined.

If the Challenge Rubber Mills only prove they have a tyre as good as the best, they have scored a substantial victory. But it seems to me they have an opportunity, which I hope they may be able to take, of doing infinitely better service to motorists than establishing the quality of their tyres. They can, I believe, successfully do what the R.A.C. has failed even to attempt to do, that is break the combine. After all it is the motorist who pays the piper. It is time he also called the tune. The Challenge people can help him to do so, being quite sure that if they take a strong line other firms will follow. Then perhaps we shall get some really free competition.

I suggest a start might usefully be made in this way. The Challenge Rubber Mills have demonstrated that they have a good tyre. They also give a very ample guarantee, but even so disputes may arise. In the event of such conflict of opinion the Challenge people might submit the tyre to the arbitration of the A.A. and M.U. and agree to abide by its decision. That would at once overcome the objection of the complaining motorist to what he may regard as a stereotyped reply and give him the assurance of a fair deal. The cost of such expert examination and arbitration could be covered by the nominal A.A. charge of, say, 2*s*. per tyre, payable by the party against whom the verdict might go. The A.A. is by far the largest organisation of private motorists in this country and its many services would be very considerably augmented if it could undertake such a scheme. I believe A.A. experts take up the grievances of members against manufacturers already, but this scheme would of course enlarge the scope of their operations considerably.

The great point is to remove that irritating sense of impotency which the motorist has in connection with his dealings with manufacturers. At present he has no effective appeal. He can change his make of tyre only to meet with the same prices and the same treatment from the new firm. I believe it would be a mutually excellent thing if a start could be made with tyres along the lines indicated. The tyre manufacturers would certainly be compelled to follow the lead of the Challenge Mills, and the system could presently spread to cover other motoring commodities also.

I hope, therefore, that some steps will be taken to see how far this idea can be made practicable. I believe that the Challenge Mills will certainly secure a large share of the tyre business if they can maintain the standard of excellence of all the Victor tyres I have used so far on the road and the track. I hope, as a motorist, that success will not mean a deterioration in the quality of tyres. The first step I have suggested will, if taken, at any rate be a considerable safeguard.

I have not the least interest in the Challenge Mills apart from my respect for them as fighters. I look to them to drive a long nail into the coffin of the combine.

71, Eaton Square, S.W. EXMOUTH.

Electric Lighting Official Tests.

SIR,—Having just completed a highly successful R.A.C. test of the Cadillac lighting and ignition system, which as is well known also consists of a self-starter, the above subject appeals to us with very special interest.

The R.A.C. tests, which have been held on most of the best sets, do not report on the light-giving qualities of the lamps. They do, however, cover such important points as reliability, freedom from adjustments, amount of attention that the system entails to keep in order, perfection of bulbs and filaments, ability to supply enough current for ordinary usage, and with an ample reserve for exceptional conditions. The other practical points, such as the light-giving qualities, adjustment of beams, steady pressure, facility for recharging, ability of the dynamo to give current at low speeds, lowest car speed on which the generator will supply without the battery cutting in could be tested in an open competition, for which we would gladly enter.

For those systems which have already been tested under R.A.C. observation, I would suggest that the makers of these should have the option of resting on the laurels of the certificate issued (which option, in our case, we should exercise) or repeating the road tests, if they consider they could do better.

The makers who have systems which have not been submitted to a R.A.C. road trial to test their reliability, should be compelled to carry out one for no less than 2,000 miles with all lamps on when travelling, and head-lamps off when the car is stopped, as this conforms to ordinary usage.

Electric lighting is so delightful that its progress should be stimulated by all manner of means, and the public enabled to judge which systems could be confidently used.

Electric lighting systems must be made with a thorough understanding of the duties and conditions which it will have to fulfil. They have to be well made, and they will not stand poor workmanship or design. For these reasons the test suggested would be a very great advantage to the public, and would meet with our hearty support.

For F. S. BENNETT, LTD.,
F. S. BENNETT.

The Unofficial Tyre Trial.

SIR,—It has been brought to the notice of the Club that in a circular entitled "Banned by the Censor," *part* of a letter signed by myself and directed to Mr. W. Yarworth Jones, of the Challenge Rubber Mills, is printed.

Anyone reading our letter as circulated by the Challenge Rubber Mills would naturally suppose that it was published in full, whereas certain important parts of it have been omitted.

I now send you a copy of my original letter, in which the parts not published by the Challenge Rubber Mills are printed in *italics*.

Thanking you in anticipation for the favour of insertion.

R.A.C., November 9th, 1912. J. W. ORDE, Secretary.

Enclosure.]

Royal Automobile Club, Pall Mall.
August 1st, 1912.

W. Yarworth Jones, Esq., The Challenge Rubber Mills.
Re Victor-Dunlop-Michelin-Continental Tyre Trial.

Dear Sir,—I am directed to inform you that the Club and the Society of Motor Manufacturers and Traders regard the above Trial as an unofficial Trial, since it is not being held under the observation of the Club. It constitutes an infringement of the following Competition Rule, *which was passed as long ago as November*, 1906, *in order that all Trials might be carried out on a uniform basis under proper regulations and under the observation of officials who have no bias in the matter one way or the other:*

Any owner, manufacturer, dealer, agent, or driver taking part in or directly connected with any Trial or competition, otherwise than under regulations made by the Club, and obtaining extensive advertisements therefrom, shall be deemed to be guilty of a breach of these rules.

I am to state that if the above rule is infringed, Victor tyres will

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be disqualified in all competitions (including Brooklands) at home and abroad, and cannot be exhibited at the Olympia Exhibition, nor would any car fitted with such tyres be admitted to the Exhibition.

The Club and the Society would be extremely reluctant to put such penalties into operation.

I would remind you that the offer made to you by the Club stands, namely, that the Club will conduct a Trial of Victor tyres and issue the certificate therefor, while at the end of the Trial, if you so desire, it would be open to you to challenge other tyre companies, depositing the amount of your challenge with the Club.

I beg to remain,

Yours faithfully,

J. W. ORDE, Secretary.

SIR,—In reply to Mr. W. Y. Jones' letter in your issue of November 2nd, Mr. Jones measures the degree of my "falsity" by the "falsity" of my statement that he has not answered my questions.

Perhaps Mr. Jones will point out his answers to the following two?

1. Has Mr. Jones' firm ever made a Victor cover in England?

2. Were there any stockists of Victor tyres in existence in England when the trial began? If so, how many, and when appointed?

It is a pity that Mr. Jones emulates the methods of the cuttle-fish when he observes any danger; they both emit clouds of ink behind when they retire.

But when I say "answer," I mean "answer." . . . .

I enclose you my card, which I have used unaltered for nine years. You will see that when Mr. Jones says I have given a "false address" in "Albert Gate" he is guilty of a common untruth.

As for the two Christian names with which I sign my letter, I should have thought that it was a fairly obvious *nom de plume*.

Now *noms de plume* are *not* "false," and it is tolerably well proved that in corresponding with a man so prone to personalities as Mr. Jones, I was not ill-advised to adopt one.

WILLIAM GEORGE.

THE S.M.M.T. ANNUAL BANQUET.

FROM every point of view the enjoyable function which took place last Wednesday evening at the Savoy Hotel, under the auspices of the Society of Motor Manufacturers and Traders, was probably the most successful of the series which have been held since their inauguration. An excellent dinner was provided, and very few short of 400 members and visitors completely filled the big banqueting hall of the Savoy Hotel. Practically every well-known personality in the motor world was present, the few absentees being well accounted for by some special reason or another. It is true no epoch making announcements were made during some excellent after-dinner speeches, but the general quality of the remarks was distinctly interesting, whilst the entertainment, which made up the second part of the evening, was selected with excellent judgment and taste, and included such delightful artists as Miss Ruth Vincent, Miss Violet Oppenshaw, Miss Mary Law, with her violin, Mr. Ivor Walters, Mr. Astley Weaver, Mr. Leslie Lambert, with his inimitable tricks and patter, and Mr. Alec. Chentrens.

Mr. E. Manville, the Chairman of the Society, presided. In proposing the toast of "The Motor Industry," the Hon. Arthur Stanley, M.P., said there was little to mention about the industry, as since they last met they had fortunately been left alone, about the best thing that could happen to them. He announced that the R.A.C. proposed to hold a race in 1913 in the Isle of Man which was to have the support of the S.M.M.T., this conclusion having been come to as it was considered that the progress of the motor had been due in the past to the series of trials which had been held. On the burning question of the year—fuel, its advance in price was, he thought, entirely due to the enormous increase in motoring. The only thing to be done was to set about finding a substitute for the regular fuel now in use. In view of the future demand for oil by the Navy, it was essential that something should be done, and it would be an enormous asset for this country to have the manufacture of such a commodity being carried on in Great Britain. The R.A.C., he thought, would be prepared to test and investigate any new fuel which might come along, which, *prima facie*, gave a reasonable prospect of success. Support, however, for such research was required, and he suggested that the S.M.M.T. might encourage the R.A.C. in their investigations by voting sums to that object from the vast wealth which he had reason to believe had accumulated in the coffers of the Society. Mr. Stanley gave a personal touch to his speech by reference to the fact that he feared the industry would soon be losing their able Chairman, Mr. E. Manville, in view of the call which the coming Parliamentary duties which he contemplated indulging in would make upon his time. In one way the industry might feel compensated by reason of their being able to feel that with Mr. Manville in Parliament, motorism would have a very staunch friend.

Mr. Manville, in his acknowledgment of the toast, said although he could in no way pledge the Society, that he hoped and believed the Society might devote some of its funds in the form of a prize, to the very desirable object of experimenting with fuels. The outstanding feature of the motor year, he said, was the formation of the International Union of Motor Manufacturers, of which M. Peugeot was the first president. It was a Union that would spell further progress for motorism throughout the world. Continuing, he said that he was pleased to state that His Majesty King George, had his engagements permitted, would have graciously considered the question of opening the Olympia Show this year in person, in view of the great interests involved in automobilism at the present time. He also announced that in 1913, in addition to the regular Shows which were now accepted annual functions, the Society also intended to promote a Marine and Internal Combustion Engine Show, which already gave the very greatest promise of success.

The toast of "The Guests" was very admirably and humorously proposed by Mr. A. S. Mays-Smith, Mons. A. Peugeot responding in an excellent speech, the only other toast being that of "The Chairman," which was in about the best hands possible, viz., those of Mr. D. Citroen.

A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

London Traffic By-Law.—It will be remembered that the Association has during the past two years endeavoured to secure the adoption of a by-law by the L.C.C. rendering it compulsory for slow moving vehicles to keep close to the near side of the road. The Association understands that the Home Secretary has approved a list of streets to which the by-law should apply. It may therefore be anticipated that the by-law will be adopted in the near future.

Motor Cycling Club Concert.—The Motor Cycling Club will hold a Smoking Concert in the Crown Room at Holborn Restaurant on Tuesday, November 19th, at 7.30 p.m. The Committee of the Club invite all A.A. and M.U. members, whether motor cyclists or car owners, to be present. Mr. Charles Jarrott will occupy the Chair, and it is hoped that as many A.A. and M.U. members as possible will avail themselves of the Motor Cycling Club's kind invitation.

Roadside Telephone Service.—Considerable progress has been made in the erection of sentry boxes with telephones in various districts, and several roadside telephones are now at the service of members. Telegrams and Express Letters may also be sent from several of the boxes which are easily seen by passing members. They are painted blue, and show on all sides the Association's badge painted in yellow.

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RACES, RECORDS, AND TRIALS.

A Race in the Isle of Man.

OFFICIAL confirmation is now to hand from the Royal Automobile Club regarding the decision to hold another race in the Isle of Man, probably next year. Although no details as to the conditions and regulations have been divulged, it is stated that "the object of the race is to give the British motor manufacturer an opportunity of showing that he can produce a car at a moderate price, and of such quality that it will stand the severe test of a road race lasting two days. It is believed that such a race will be acceptable to the British motor car manufacturer." The inhabitants of the Isle of Man are strongly in favour of a race.

The A.C.F. Grand Prix Not Dead Yet.

IN spite of the fact that the stipulated number of entries were not sent in before the closing date, the Automobile Club of France has decided to go on with the organisation of its Grand Prix race, and announces that the race will be held regardless of the number of entries. It has also been decided to extend the time for entry at ordinary fees to December 31st.

R.A.C. Tests with Cadillac Electric Lighting and Ignition System.

AN official certificate has now been issued by the Royal Automobile Club in connection with the trial over a distance of about 2,000 miles, from September 23rd to October 7th, with the electric lighting and ignition system as fitted to Cadillac cars. The following are the details given in the certificate:—

The device, fitted to a 32·4 h.p. Cadillac car, consisted of (*a*) a dynamo driven by the engine; (*b*) a set of accumulators charged by the dynamo; (*c*) an ampere-hour meter controlling the charging of the battery by the dynamo; (*d*) an ignition coil, with interrupter, and distributor taking current from the dynamo-battery circuit.

For lighting and ignition purposes the cells were coupled in parallel to give six volts. The dynamo was also used to start the engine by temporarily gearing it to the periphery of the fly-wheel, at the same time coupling (through a series-parallel controller) the cells of the battery in series to give 24 volts. The dynamo ran at engine speed. The gear ratio of the car was:—Top speed, $3\frac{9}{13}$ to 1; 2nd speed, $6\frac{3}{4}$ to 1; 1st speed, $12\frac{1}{8}$ to 1. With the 880 mm. by 120 mm. tyres used, the speed of the engine and dynamo was 737 revolutions per minute at 20 miles per hour.

A magnetic cut-in is employed to connect the dynamo to the battery only when the dynamo speed rises above a predetermined limit. A dry battery is used for ignition purposes when starting.

When the battery is fully charged the ampere-hour meter interposes a resistance in the shunt winding of the dynamo, with the object of reducing its voltage by weakening its field. The index finger of the meter can be so regulated by hand as to intentionally overcharge the batteries to a predetermined degree. The set of lamps used consisted of the following: Two parabolic head lamps fitted with bulbs taking 2·9 amperes each; two side lamps fitted with bulbs taking 1·43 amperes together; a dash lamp and tail lamp (in series) taking 0·7 ampere. The weight of the dynamo together with the reducing gear for starting the engine was $85\frac{1}{2}$ lb. The weight of the accumulators together with the containing box was $104\frac{1}{2}$ lb. The lamps were fitted in the usual position upon the car.

2000·5 miles were run upon the Club's standard routes. All lamps were on all the time except during stops, when the head lamps were usually turned off. The average speed (running time only) was 19·54 miles per hour. Two bulb replacements were made—one side lamp after 929 miles, and the other after 1,197 miles.

During the last day's run there was much fog in the morning, the average speed during the first hour being 13 miles per hour.

The diary of the twelve days of the trial shows that all the lamps were alight for an average of practically ten hours daily; while, in addition, during nearly one hour each day, all the lamps, except the headlights, were alight. The engine was stopped for about two hours each day, while the morning and evening readings showed that the battery voltage varied very little indeed from 6·7.

Motor Cycling at Brooklands.

THE high wind which prevailed on Saturday at Brooklands was all against record breaking and, in fact, the only figures which were improved were those for cycle cars for the hour and at fifty miles. The meeting was the last of the season of the British Motor Cycle Racing Club, the programme commencing at 10 a.m. with the time trials which were postponed from the last meeting. The fastest times in these were made by C. R. Collier, on his Matchless machine, he covering the kilometre in 80·87 m.p.h. and the mile at 79·87 m.p.h. H. F. Morgan, on the Morgan cycle car, covered the kilometre at 58·94 m.p.h. and the mile at 58·86 m.p.h. The racing part of the programme opened with the cycle car and side-car races, the cycle cars being sent off 1 min. before the side-cars. For the former, Morgan took the lead, while F. Barnes, on a Zenith, led the three-wheelers, but very soon after the start, Wood, on the G.W.K., got in front, but only to hold this position for a short time, he being put out of the running by ignition trouble. The winner was H. F. S. Morgan, who crowded the record distance of 55 miles 329 yards into the hour, and was timed to do the 50 miles in 54 mins. $39\frac{1}{5}$ secs. F. E. Readwin on a Sabella was second with 48 miles 1,540 yards, and J. T. Wood on a G.W.K. third with 46 miles 1,202 yards. Among the side-cars, F. W. Barnes on his Zenith kept the race well in hand, and won with a score of 51 miles 897 yards, S. F. Garrett ($3\frac{1}{2}$-h.p. Green-Precision) being second with 49 miles 420 yards, and C. B. Franklin (7-h.p. Indian) third with 47 miles 270 yards. The next event was a three lap race for machines up to 500 cc., in which O. C. Godfrey on a special racing Indian was an easy winner at 65·6 m.p.h., R. Brewster (Norton) was second, and P. Weatherilt (Zenith) third. The hour race for 350 cc. machines followed, and Harry Martin led the field for the first few laps until a broken petrol pipe caused his retirement. The lead was then varied for some time as other competitors dropped out for various reasons, but eventually Hugh Mason, on a N.U.T., got in front and secured the victory with 52 miles 625 yards. W. F. Newsome (Douglas), was second with 51 miles, and Lea Temple (Moto Reve), third, 41 miles 688 yards. As was expected the three-lap race for the 1,000 cc. machines called for the fastest speed, and Harry Bashall, on his Zenith, got round the first lap from standing start at 74·12 m.p.h. A popular victory rested with Harry Read on the Dot, whose speed for the three laps averaged 74·97 m.p.h., while his fastest lap was 78·55 m.p.h., C. B. Franklin, on the Indian, was second, and E. F Remington, on a Matchless, third. The last item on the card was the hour race for 500 cc. machines, and during this there was a hardly fought duel between O. C. Godfrey, on the Indian, and S. F. Garrett on the Green-Precision. These two riders kept together throughout the race, and at the end of the hour Godfrey secured his victory by eight yards only, his score being 60 miles 1,370 yards. J. L. E. Emerson, on a Norton, was third with 58 miles 1,047 yards.

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CURRENT ITEMS OF INTEREST.

Steam Engines as Brakes.

LAST week a conference was held at the Local Government Board between the engineers of the Board and representatives of the Commercial Motor Users Association to discuss the question as to whether the reversity of the engine of a steam wagon can be regarded as equivalent to an independent brake for the purposes of the Motor Cars (Use and Construction) Order, 1904. Lengthy consideration was given to the question, and the C.M.U.A. offered to conduct some tests to show the relative effect of a brake acting on a drum mounted on the differential and a brake acting on a wheel direct.

Another Obstructionist Fined.

WHAT was no doubt thought to be a great joke at the time by the driver of a brake, containing a beanfeast party, ended in him being fined £1 and 7*s.* costs, with an alternative of seven days imprisonment, at Watford last week. From the evidence put forward by Mr. W. Taylor Parkes for the A.A. and M.U., who were the prosecutors, it appears that the driver of the brake obstructed Dr. Mark Sharman's car on the road between Batchworth Heath and Rickmansworth, and took no notice of the repeated blowing of the horn, except to occasionally turn round and laugh.

Reversing the Order of Things.

MOTORISTS have generally a great attraction for the police. "Officer 666," who is appearing nightly at the Globe theatre, is likely, *per contra*, to attract many motorists. The piece is full of genuine merriment from beginning to end, and during the second act a motor effect is introduced which should be heard, if only to bring home to motorists a view taken by some folk as to the noise which their cars are supposed to be guilty of creating.

"Brum.'s" Mayor Gets a Car.

IN recognition of his services to the city during the past three years as Lord Mayor of Birmingham, Alderman Bowater has just been presented with a fine 38-h.p. Daimler double landaulette and a piece of silver plate. The first of Birmingham's new series of registration marks—OA 1—has been reserved for use on this car.

Where the Schoolmaster Failed.

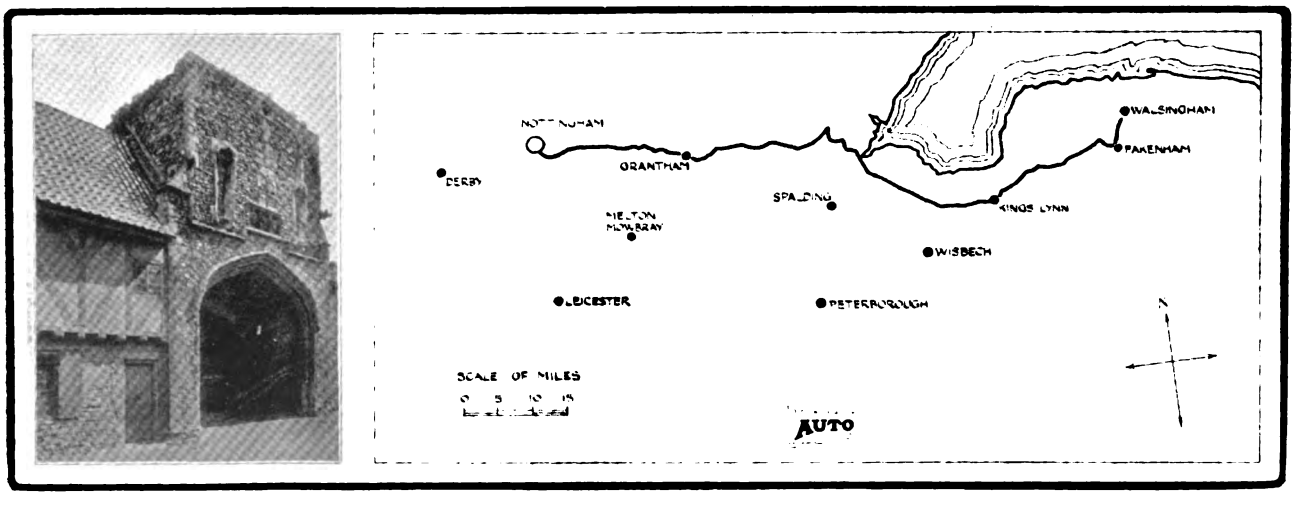
SUMMONED by the London County Council for not having a proper licence for his motor car, a Bermondsey motorist stated that he had relied upon a calculation made by a Council schoolmaster, which showed that the horse-power was 32, and he had paid 8 guineas, but, as a matter of fact, on the basis of the Treasury regulations, the car was of 40 horse-power, and the magistrate ordered payment of the extra 2 guineas tax and 2*s.* costs.

A Useful Book for Draughtsmen.

THOSE draughtsmen who are lucky enough to secure a copy, will doubtless take special care of a little book which has just been issued by the United Motor Industries, Ltd., as an advertisement for D.W.F. ball-bearings. It gives very complete conversion tables from fractions of an inch to decimals of an inch; from inches to millimetres, with the fractions (by sixty-fourths) up to 12 ins.; and from millimetres into inches with both decimals and common fractions. Draughtsmen and those who have to do with these sort of conversions know that the tables usually found in pocket-books are excellent in their way, but are not complete enough for practical purposes, and that is where this little book comes in and fills the gap.

Motor 'Buses in Parliament.

MR. MCKENNA must surely be learning quite a lot about London's motor 'buses just now, as scarcely a day passes but he has to answer some question or other upon them, and sometimes the same question is put to him more than once. For some time there has been a feeling in certain quarters that a Select Committee should be appointed to consider the matter of motor 'bus traffic, and in the House of Commons last week Mr. McKenna promised that such a committee should be appointed. In order to make matters clear, Sir J. D. Rees asked if the Home Secretary would consider the deaths from non-motor vehicles when dealing with the matter, and Mr. McKenna said that that was a question into which a Select Committee would have to enquire. On the same occasion Mr. McKenna rebuked Mr. Kellaway for his continued references to the motor 'bus "Trust," by which he was creating prejudice which was absolutely unjustified.



The once-famous old abbey at Little Walsingham, in Norfolk, had a magnificent gateway, which still stands, to the delight of all who love old architecture. It was erected about the early part of the twelfth century, and although the statues have long since disappeared from their niches, this isolated link of the past still bears some interesting carvings.

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RADIATOR PATENT UPHELD.

MERCEDES DAIMLER *v.* F.I.A.T. MOTOR CAR CO.

JUDGMENT was given on Tuesday in the Chancery Division by Mr. Justice Joyce in the action brought by the Mercedes Daimler Motor Co., Ltd., against the F.I.A.T. Motor Car Co. for an injunction to restrain the defendant company from infringing plaintiff company's rights in a motor car radiator. The radiator in question is made of an assemblage of square tubes, so arranged that the hot water from the cylinders is pumped into thin flat chambers and there cooled by the chill air rushing through the square tubes above and below.

Mr. Justice Joyce in delivering judgment said that there were in other specifications, notably in the Daimler specification of 1898, things similar to those in the patent which was the subject of the action, but it was quite impossible to make out, and it was not even argued, that the invention which was the subject of this patent was described sufficiently to constitute anticipation in any of the English specifications, or even in any others.

The flat sided tubes and the arrangement set forward in this patent were not to be found in prior specifications, nor, he thought, was the particular mode of constructing the chambers in the plaintiff company's radiator. But the real issue was whether, having regard to what was known at the date of the specification, there was sufficient subject-matter to justify the patent. If English specifications alone were in question, it would be impossible to contend that there was not sufficient subject-matter; but since some date in 1900 an abstract of a French specification had been reposing in the library of the Patent Office. That was a patent for a new assemblage of tubes, whereby, when applied to some boilers, a great evaporative capacity could be obtained. There was not a word in the specification about radiators, motor cars, or anything of the kind. The defendant company had not established or attempted to establish that what was disclosed in that specification was known at the time of the specification on which the plaintiff company relied. But even supposing an intelligent man having his mind saturated with what was to be learned from the English specifications did come across the description of the French invention, and had suggested to him thereby the application of flat-ended tubes, or suppose that having seen the French specification he sat down and evolved a scheme with flat ended tubes — could what he did be considered invention? There would not be very much invention in the popular sense of the term. Still, invention in that sense would have been required in order to arrive at the patent on which the plaintiff company relied, and there was sufficient invention to constitute a a patent for it. In other words, he thought the objection on the ground of want of subject-matter could not be supported, and he held the plaintiff company to have a good and valid patent.

Mr. Astbury, K.C., for the plaintiff company: The relief we get will be the usual injunction and the usual certificate of validity, and we shall get the usual certificate as to breaches and an order to deliver up or destroy the infringements.

Mr. Thomas Terrell, K.C., for defendant company: Thousands of cabs will have to be taken off the streets of London if this judgment stands, and I am going to ask your Lordship with regard to an appeal.

Mr. Astbury: We don't want our friend to break up or destroy cabs pending appeal.

In the end it was agreed that if the notice of appeal were given within 14 days there should be a stay of the whole of the order except the taxation of costs.

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COMPANY DOINGS.

Sunbeam Motor Car Co., Ltd.

THE directors' report for the year ending August 31st, 1912, states that the profit for the year, after paying all expenses of management, and allowing for depreciation and income tax (but before providing for directors' remuneration), amounts to £60,889 12*s.* 6*d.* After adding £8,668 11*s.* 6*d.*, the balance from last year, and deducting £900, the half-yearly dividend on the preference shares paid in April, there is a balance of £68,658 4*s.*, which they recommend shall be appropriated as follows:—Pay the balance of dividend on the preference shares, £900; pay a dividend of 25 per cent., free of income tax, upon the ordinary shares, the dividend on the new issue being calculated from April 30th, the date of allotment, £21,666 13*s.* 4*d.*; place to bonus fund, &c., £3,250; place to reserve (bringing this account up to £100,000), £34,782 14*s.* 11*d.*; and carry forward £8,058 15*s.* 9*d.* The mortgage on a portion of the works taken up on the incorporation of the company has now been paid off. The amount received for premiums on the new ordinary shares issued in April last, viz., £25,000 (less £280 8*s.* 8*d.*, the cost of the issue), has been placed to the reserve account. Since the last annual meeting the directors have appointed Mr. Louis Coatalen, the company's chief engineer, to a seat on the board.

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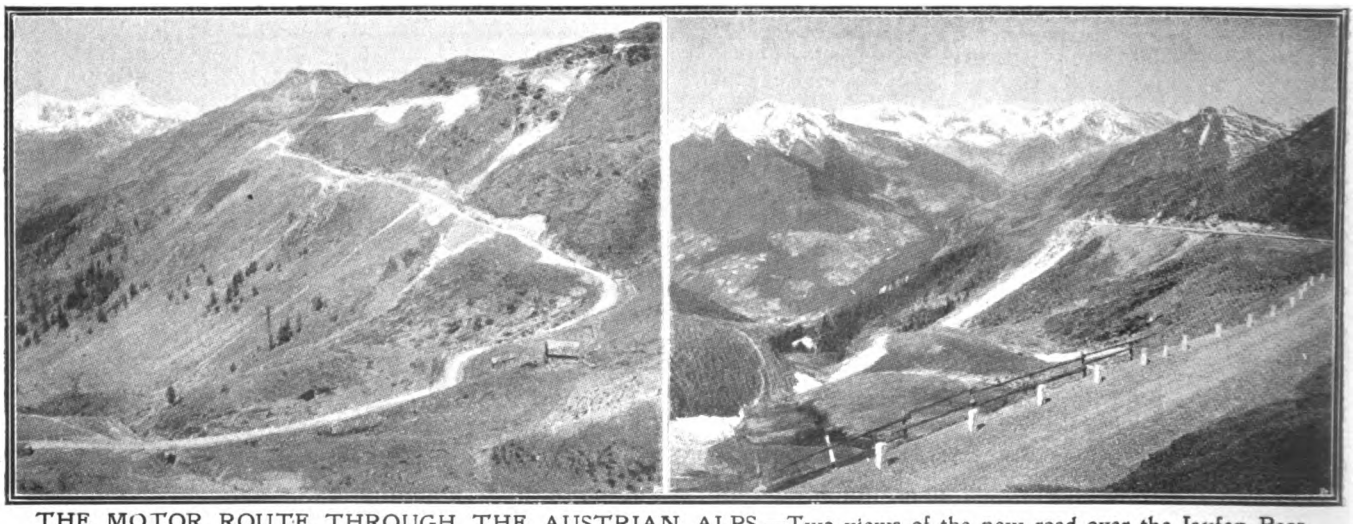
NEW COMPANIES REGISTERED.

N. A. P. Foreign Rights, Ltd.—Capital £65,000, in 15,000 "A" shares of £1 each and 1,000,000 "B" shares of 1*s.* each. Manufacturers of and dealers in articles made from rubber and its substitutes, dealers in motor components, accessories, motor cars, &c.

John Warrick and Co., Ltd.—Capital £60,000, in £1 shares (30,000 pref.). Acquiring business of a motor and cycle manufacturer and dealer carried on as John Warrick and Co., at Reading. First directors, J. Warrick, J. L. Warrick, W. Warrick, and J. H. Warrick.

Private Company.

Parsons Garage, Ltd., Town Quay, Southampton.—Capital £5,000, in £1 shares. Acquiring so much of the business carried on by the Parsons Motor Co., Ltd., at the Town Quay, Southampton, as relates to the purchase, sale, storage, and letting on hire of motor cars, &c. First directors, H. Parsons and C. R. Swayne.



THE MOTOR ROUTE THROUGH THE AUSTRIAN ALPS.—Two views of the new road over the Jaufen Pass. On the left, one of the huge serpentines leading up to the pass from the famous Passeier Valley. On the right, the view looking down into the valley from near the top of the pass, the village of St. Leonhard being seen in the distance.

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PUBLICATIONS RECEIVED.

Draughtsman's Measurements; Complete Conversion Tables. The United Motor Industries, Ltd., 45, Poland Street, W.

The British Fire Prevention Committee: What it Does. 8, Waterloo Place, Pall Mall, S.W. Price 1s.

The American Invasion.

Magneto and Electric Ignition. By W. Hibbert, A.M.I.E.E. London: Whittaker and Co. Price 2s. net.

The Press and C.A.V. C. A. Vandervell and Co., Warple Way, Acton Vale, London, W.

Catalogues.

Austro-Daimler Aero Engines. The Austrian Daimler Motor Co., Ltd., 112, Great Portland Street, W.

Grimston Tyre Bulletin No. 21. The St. Albans Rubber Co., London Road, St. Albans.

BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1912.

In the trade returns for January, 1909, for the first time, *real* annual import and export trade totals were comparable, as, prior to 1908, no record was made of cars of travellers either coming into or leaving this country, the values and numbers being simply included in the export and import figures.

NOTE.—In our issue for January 13th, 1906, we published in one table the full figures of British Exports and Imports for 1902, 1903, 1904, and 1905. Prior to 1902, motor cars were not classified separately. In the issue for January 12th, 1907, the complete figures for 1906 were published; for 1907 in January 11th, 1908; for 1908 in January 16th, 1909; for 1909 in January 15th, 1910; for 1910 in January 14th, 1911; and for 1911 in January 13th, 1912.

OCTOBER.	1911. October.		Ten Months ended October.		1912. October.		Ten Months ended October.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
IMPORTS.								
		£		£		£		£
Cars ...	525	131,107	5,452	1,417,458	403	117,012	6,621	1,595,409
Chassis ...	493	125,508	5,691	1,479,076	586	147,426	6,492	1,638,152
Parts ...	—	191,242	—	2,116,516	—	268,621	—	2,752,183
	1,018	447,857	11143	5,013,050	989	533,059	13113	5,985,744
Motor cycles	53	1,709	1,205	37,739	97	3,157	1,183	38,256
Parts ...	—	3,018	—	54,847	—	38,433	—	134,862
	1,071	452,584	12348	5,105,636	1,086	574,649	14296	6,158,862
EXPORTS.								
Cars ...	630	261,839	3,509	1,408,287	595	219,776	4,083	1,563,962
Chassis ...	79	29,481	576	235,653	119	42,805	959	351,713
Parts ...	—	120,156	—	894,138	—	113,262	—	992,741
	709	411,476	4,085	2,538,078	714	375,843	5,042	2,908,416
Motor cycles	836	33,020	5,307	198,293	1,702	68,130	10491	420,798
Parts ...	—	7,844	—	56,568	—	26,195	—	151,267
	1,545	452,340	9,392	2,792,939	2,416	470,168	15533	3,480,481
FOREIGN AND COLONIAL RE-EXPORTATION.								
Cars ...	155	55,877	859	250,155	160	51,909	858	277,227
Chassis ...	97	30,898	328	102,648	67	19,421	522	145,869
Parts ...	—	19,630	—	179,520	—	15,658	—	196,859
	252	106,405	1,187	532,323	227	86,988	1,380	619,955
Motor cycles	13	556	84	3,204	12	500	116	4,982
Parts ...	—	519	—	5,870	—	982	—	7,476
	265	107,480	1,271	541,397	239	88,470	1,496	631,413

Note.—Total number of cars (including touring and other cars not for sale) during October, 1912—

Imports—653 (total for 1912, 9,893), value £288,181 (total for 1912, £3,734,461).

Exports—712 (total for 1912, 5,578), value £291,519 (total for 1912, £2,462,112).

Foreign and Colonial re-exports—291 (total for 1912, 2,061), value £146,274 (total for 1912, £1,078,790).

ROUNDABOUT NOTES.

MR. A. J. WILSON, hon. sec. and treasurer of the Cycle and Motor Trades Benevolent Fund, reminds subscribers that (in accordance with Rule 44) any subscriber may, on or before Monday, December 2nd next, nominate another subscriber to act as the subscriber's representative upon the Executive Committee for the year following the annual general meeting, which is fixed for Tuesday, December 17th.

AMONG electric lighting systems for motor cars, the Mira Magnetolite has won for itself a place in the front rank. A very interesting little book has just been published by the High Tension Co., of Hungerford Works, 62, Belvedere Road, S.E., giving full particulars of the system and fittings which can be used in connection with it. It also contains particulars of the Echo electric horns in various styles.

AT an extraordinary meeting of the Deasy Motor Car Manufacturing Co., Ltd., the other day, it was unanimously resolved that the name of the firm should be changed to the Siddeley-Deasy Motor Car Co., so as to bring it into conformity with the name of the car which is now being produced by the firm.

"FOR the Highway and the Skyway" is the title of a little booklet just published by Messrs. C. C. Wakefield and Co., giving particulars of what "Castrol," "the oil that circulates everywhere," has done in 1912. It gives a number of fine pictures of motor cars, motor cycles, and motor boats, as well as portraits of half a dozen of our leading aviators. Among the successes of the "Castrol" during the past season may be mentioned the first three places in the Coupe de *l'Auto*, the British International Trophy for motor boats, the first Aerial Derby, British Empire Michelin Cup No. 1, Senior Tourist Trophy race for motor cycles, &c., &c., &c. Send a postcard for a copy and mention the AUTO.

A SMART journalistic feat was accomplished by Messrs. R. T. Lang, Ltd., on behalf of Messrs. Clement Talbot, Ltd., Barlby Road, North Kensington, W., in getting out a brochure containing the notices which have appeared in the leading papers regarding the Talbot exhibit at Olympia. Many of the notices did not appear until Saturday, but the book was ready for distribution at the Talbot stand at 10 o'clock on Monday morning.

A NEW price list has just been published by the Avon India-rubber Co., Ltd., of Melksham, Wilts, which, of course, contains full particulars and prices of the various patterns of Avon tyres, including the special tyre, which has an extra thick tread with transverse grooves. There is in addition a price list for retreading, of which the firm make a speciality, and the book also contains a number of very useful hints on the care of tyres.

FROM the College Motor Co., 115, Fulham Road, London, S.W., we have received a booklet dealing with a 15·9-h.p. R.A.C. rating S.C.A.R. car, which gives full particulars of this excellent little car which has won so many successes at Brooklands and in other competitions this year. There is also a number of illustrations of the various types of bodywork, &c.

THERE is much that is commendable about the latest catalogue to hand just published by the N.A.G. Motor Co., Ltd., 4, Great Marlborough Street, Regent Street, W. It is well got up, the photographs are excellently reproduced and the descriptions of the various models are as concise and clear as possible.

DID you see that photograph on page 1329 in last week's issue showing the German Emperor riding in a 30-40 h.p. Piccard-Pictet car? Of course, like other cars of this make, the car was fitted with an engine of the single sleeve-valve type, built under the Argyll licence.

IN our last issue the Austin works were described as being at Northbridge. Evidently the printer was in a contractive mood, as of course the address should have been Longbridge Works, Northfield, Birmingham.

MESSRS. SPYKER CARS have just issued a very useful booklet giving details of their 20-h.p. model.

THE Sunbeam Motor Car Co. is now turning out an engine suitable for the R.M.Y.C. restricted class, and the first has just been installed on a craft which has just been built by Messrs. S. E. Saunders to the same lines as the successful "Rip III." The boat is now undergoing her trials at Southampton.

QUITE a large number of visitors to the Olympia Motor Show have taken advantage of the opportunity to go along to 78 and 80, Brompton Road, S.W., to inspect, in the showrooms of the Brompton Motor Co., Ltd., the Benz car which won the Gaillon Hill-climb at the extraordinary speed of 101 m.p.h. A large selection of new Benz models fitted with bodies by leading English carriage builders have also been on view.

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MIDLAND MEMS.

A SOMEWHAT novel and effective security bolt has recently been put upon the market. This bolt is called the "Non-Pinch," and is made by Mr. J. F. Smith, of 54, Camp Hill, Birmingham.

This device is provided with a patented hinged or jointed head, by which means it claims immunity from the offence of tube-nipping, and also to be easier and quicker to manipulate than the rigid form of bolt. A number of these new bolts have been running for long periods in various kinds of motor vehicles, and have given all-round satisfaction. The "Non-Pinch" bolt is well made, with an ample safety factor, in the usual standard sizes, and can be fitted to any rim without alteration. Mr. Smith will be happy to furnish illustrations, prices, and full particulars on application to the above address.

• • •

I would advise all motor owners who have electric lighting in their garages and are interested in the heating of those places during the winter, to apply to the Electric and Ordnance Accessories Co., Ltd., Aston, Birmingham, for their catalogue on "Modern Heating by Electricity." In this they will find particulars of electric heaters for garages, and reliable guidance in selecting them.

• • •

The one-time Whittall Engineering Co., of Whittall Street, Birmingham, have now changed their name and address—the former to that of the Ixion Motor Manufacturing Co. and the latter to 35, Great Tindal Street, Ladywood, Birmingham.

I was "round" their new works this week, and find that the premises are well and sufficiently equipped to turn out four or five times the amount of motor cycles possible at the old address, which, I understand, was quite inadequate to cope with the steadily-increasing demand for "Ixion" motor cycles.

In recent conversation with Mr. Starley, of the Rover Co., I was told that the firm are making in future only two models—the 12-h.p. four-cylinder 75 × 130 mm. and the 18-h.p. four-cylinder 90 × 130.

Both these models have proved most successful, indeed so much so that the chassis of both cars will remain practically unaltered. Various improvement and embellishments have, however, been given to their smaller car in equipment. A useful and thoughtful addition is to be found in the combined foot-rest and the tool box placed in the back floor space, whilst the appearance of the body is much enhanced by the mahogany strips placed along the tops of all doors.

Mr. Starley informs me that a big amount of next year's output is already "booked," which, considering the popularity of these cars, is hardly to be wondered at.

• • •

The "Featherweight Steel Pistons" made by the Oxygen Welding Works, Ltd., New Summer Street, Birmingham, are evidently getting well on the market. Mr. Patrick tells me that the demand is going strong, and that these pistons are now in use in "Crossley," "Humber," "Calthorpe," "Austin," "Lanchester," "Napier" and other well known cars. Extreme lightness, combined with strength, quick acceleration, with minimum vibration, are the chief points which find favour with these pistons, and their claims certainly merit every consideration.

• • •

Midland manufacturers appear to be quite happy now that all their Show arrangements are "fixed up." For there is, doubtless, plenty of work to be done, with incidentally, not a little worry, before the stuff is finally "put on the stands." However, they can now take a temporary rest from their labours.

I fancy I can hear them even indulging in thanksgiving song, and tuning over, in parody, the first line of the one-time popular seaside chorus: "On the stands, on the stands." PEJAY.

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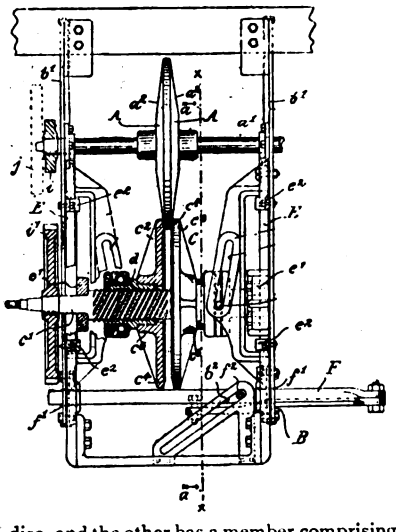
BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

22,450. October 11th, 1911. Improvements in Variable Speed Gearing. T. J. F. Ryland, 252, Camberwell New Road, S.E., and E. S. Louis, 57, Penwortham Road, Streatham, S.W.—This invention relates to variable speed power transmission friction devices. The driving and driven shafts are arranged parallel and opposite to one another, and one of the shafts has mounted thereon

Fig. 1.



a disc, and the other has a member comprising two component parts which frictionally engage the opposite faces of the said disc at a point which can be varied and which is situated between the two shafts. Fig. 1 is a plan view, partly in section, of a variable friction gear for use with a motor vehicle. The driving member, A, is secured to a shaft, a^1, driven from the engine and mounted within side members, b^1, of a frame, B, and is a disc having each side face, a^2, inclined to the plane of the disc. Mounted upon a shaft, c^1, is the member C, frictionally engaging with the faces, a^2, of the member, A, and constituted of two component parts, c^2 c^3, on either side of the disc, A, each consisting of a disc having an inclined face, c^4, at its outer edge which is adapted to rotate upon the face, a^2, of the member, A; and this face is so shaped that the distance of the point of contact from c^1 only varies between narrow limits, and in order that the pressure between the faces, c^4 and a^2, may automatically vary in accordance with the power to be transmitted, the said component parts, c^2 and c^3, are provided with bosses, c^5, into which are screwed extensions having threads which are adapted to engage with corresponding threads upon the shaft c^1. The force transmitted through the discs, c^2, c^3, to the shaft, c^1, causes, by means of the suitably arranged threaded engagement of the shaft and boss, the said discs to close towards one another and thereby press against the member, A, proportionately to the effort transmitted. The pitch of this screw must not be too sharp, or else the pressure between the discs will not be sufficient to prevent slip. The shaft, c^1, is adapted to be moved towards or from the shaft, a^1, whereby the faces, c^4, contact with the faces, a, of the member, A, at variable distances from its axis of rotation, the faces, c^4, to allow of such a variable engagement extending only a comparatively small distance inward, whilst the faces, a^2, extend substantially to the boss, but to such a distance as to allow of C being moved in a direction towards the boss out of frictional engagement with the member, A. The shaft, c^1, in the illustration is mounted in bearings, e^1, which depend from bars, E, slidingly mounted with sockets, e^2, upon the side members, b^1, of the frame, B. The bars, E, are moved in unison through the medium of a handle, which is conveniently disposed for actuation by the driver of the vehicle, and which may be locked in any desired position. A bar, F, is adapted to slide through sockets, f^1, in the frame, B, and by virtue of such sliding movement the bars, E, are moved by means of roller, f^2, of the bar, F, working within a slot, b^2, of the transverse member connecting the bars together. The bar, F, is reciprocated by the handle-member pivoted to the vehicle, and connected to a link pivoted to the bar. Spur-wheels i, i^1, may be mounted respectively on the shafts, a^1, and c^1, which spur-wheels, when the gear, C, has been moved towards the shaft, a^1, beyond the neutral position, in the position in which the inclined faces, c^4, are beyond the inclined faces, a^2, of the gear, A, are adapted to mesh with one another, and provide for a positive-drive. To provide for a reverse-drive, a spur-wheel or idler, j, is adapted, when the gears, A, and C, have been moved into the neutral position, to be slid into engagement with the spur-gears, i, i^1.—October 23rd, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published November 14th, 1912.

18,665. F. L. MIDDLETON. Starting of multi-cyl. I.C. engines.

23,332. T. S. JAMES, R. G. ORR AND G. J. MAUDE. I.C. engines.

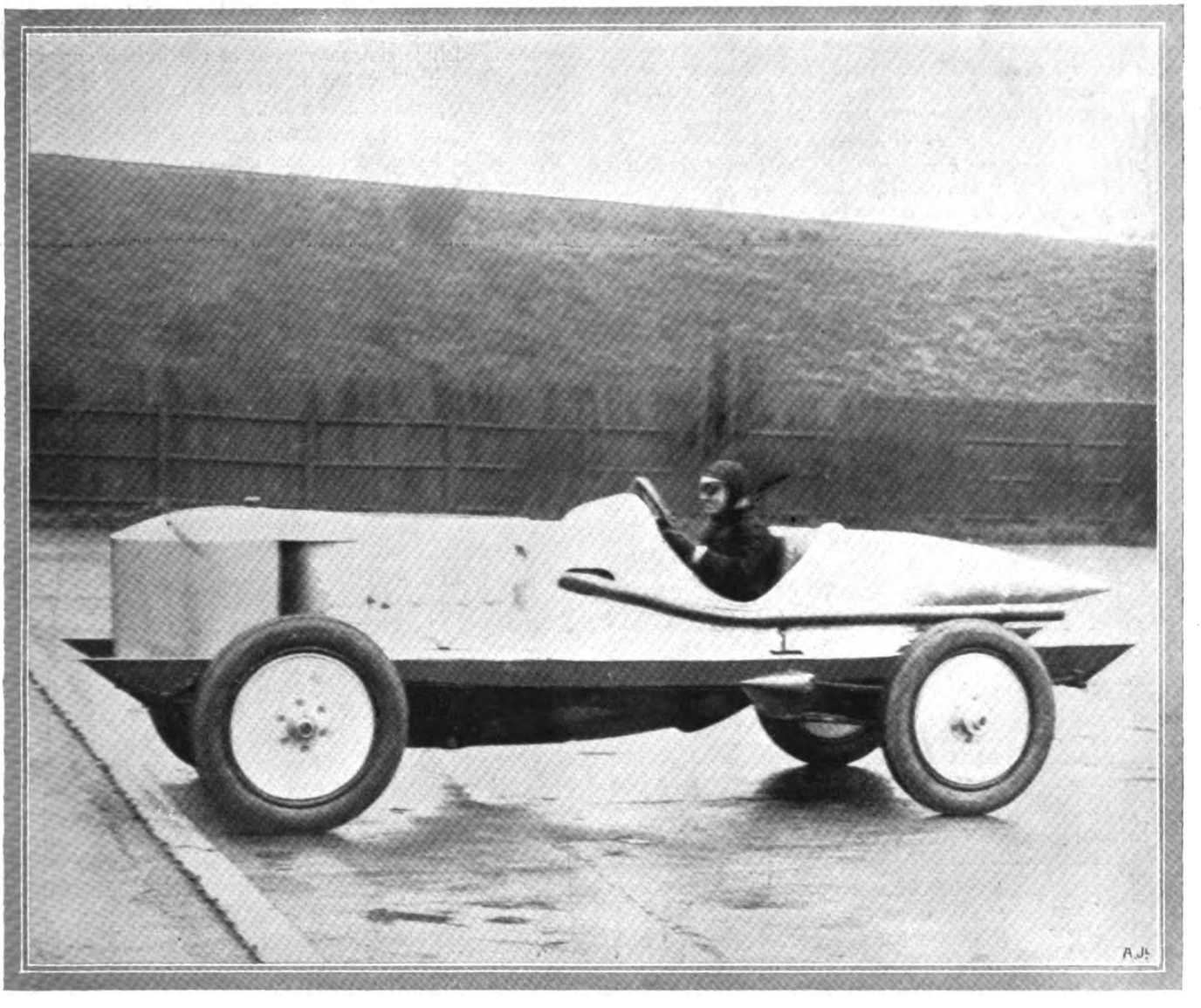
23,349. J. A. HARRISON. Appliance for painting tyres.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 620. (No. 47, Vol. XVII.)] NOVEMBER 23, 1912. [Weekly, Price 3d. Post Free, 3½d.



The feature of the week is the wonderful performance of the Clement-Talbot car driven by Mr. Percy Lambert on Brooklands track. Over a distance of a half mile the average speed was 113·28 m.p.h., and for the whole lap the average speed was 109·3 m.p.h. Those who know what this means on Brooklands just now will have nothing but admiration for both man and machine. This car also has the latest thing in streamline bodies, which are of the utmost importance in reducing wind resistance. The design of this particular body is especially interesting because the radiator has a streamline nose while the bonnet comes to a point behind the radiator, thus ejecting the air that has passed through the radiator, and keeping the dust out of the engine. Every part of the car has been most carefully protected with wind-cutting cover plates.

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The AUTO MOTOR JOURNAL. (YELLOW COVER).

EDITORIAL AND GENERAL OFFICES:
44, ST. MARTIN'S LANE, LONDON, W.C.
Telegrams: "TRUDITUR," London.
Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
	s. d	s. d.		s. d.	s. d.
United Kingdom	3 6	7 0	United Kingdom	7 0	14 0
Abroad	6 6	13 0	Abroad	10 0	20 0

Remittances.

Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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For the "Auto." Directory to Makers of Cars and Accessories see pages xxvii to xxxi.

Passing Events

Some Show Reflections.

Another Show has passed into the shades of the things that were, and the time has come when it is possible to view Olympia in its many aspects through the glasses of retrospection. It is still too close for the careful student to pronounce with definite certainty upon all the indications and lessons to be seen and learnt during the brief period of a Show week, but, nevertheless, there are certain outstanding characteristics of the late Exhibition which are well worth touching upon straight away and before the first impressions have had time to wear off.

First, as to the Show itself. To our mind it simply passes comprehension how such a function as a Motor Show can continue not only to hold its popularity, but to increase it to the extent which is conveyed by the figures of the Olympic week. A quarter of a million people passed the barriers during the run of the Show. Certainly not a fifth of them were able to study the exhibits in the way which it might be imagined the person who paid his money for admission would desire to study them. And, yet, everybody seems satisfied. To stand in the gallery on such an evening as that of Show Wednesday, when to move was almost impossible, and look down at the seething crowd in the body of Olympia, was a real study in the psychology of crowds. Why was everyone there? Not to buy cars; not even to look at cars, for the latter was utterly impossible. Simply to be carried up one gangway and down another by the irresistible slow movement of the human current and to see nothing but lights above, below, and all round, with, perhaps, here and there a glimpse of some car standing out like an island among a sea of people. There could have been neither comfort nor information, but certainly there must have been entertainment, for, as we have said, everyone appeared to be pleased. It is not, too, as though this had been the first year of overcrowding. In 1911, and, to a somewhat less extent, in 1910, the same story of a packed building and visitors unable to see the exhibits had to be told, and it was freely prophesied that herein lay the doom of the Show as an exhibition enterprise. People, it was said, would never go to the Show to form units in a never-ceasing stream of humanity, wandering, apparently devoid of object, round a building in which motor cars were supposed to be on show, but which were practically invisible to half the visitors. But the figures of last week are there to give the lie to the prophets, and the Show of 1912 has been, by a long way, the most successful of the series. Not only is the Society of Motor Manufacturers and Traders to be congratulated upon the success of the Show from the exhibition promoters' point of view, but the trade as a whole has full reason for satisfaction. As a business Show this year's Olympia has broken yet another record, for on all hands we hear of excellent business having been done, especially in the larger and more expensive types of cars. Therefore, congratulations to everyone concerned upon the eclipse of all previous bests.

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The Apparent Trend of Things.

It is difficult at this short interval to say exactly upon what lines the lessons of the Show are to be read and assimilated. First impressions are too often found to be misleading upon further and more mature consideration, and in no case more so than in connection with what, for want of a better term, we must call the lessons of the Show. There are, however, certain main themes upon which it is nearly impossible to go wrong, and it is these to which the wise critic will confine himself until such time as he can form a sound judgment upon a basis of fuller consideration of the

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trend of things than is possible with the sound of the closing of the doors in his ears. Regarding these main lines of the subject, the first thing that must have struck the intelligent student is the movement towards a reversion to the bigger engine. Two years ago the most popular type was the so-called "fifteen-point-nine," a wonderfully efficient type, but one developed under the artificial stimulus of excitement over the Treasury rating, when cars were first taxed by bore. Many makers, striving to get more power for the same "tax," endeavoured to arrive at the goal by the simple expedient of leaving the bore at 80 mm. and increasing the stroke. Whether they are right is a matter we are not going to argue upon at the moment. It is significant, however, that several have now cut away from the long stroke and have frankly gone in for an increased bore, in spite of the greater incidence of taxation.

The next thing that strikes us is the movement towards concentration in quantity production, which is the key to American cheapness of manufacture. For example, there is the case of the Wolseley Co. to be noted, in which the efforts of the works are to be focussed on the production of 4,000 similar cars of the highest British quality throughout, with a motor powerful enough for every ordinary purpose, which are to be sold to the motorist for much less than £500 apiece. In fine, it is the application of the American policy to the English car, and there is nothing better calculated to keep the home market in British hands that has yet been done in English enterprise.

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The Small Car. The trend towards larger engines is no indication of a reduction in the number of cars of small size; on the contrary they appear to be developing in a wonderful manner. More than ever is to be seen in the case of the British and Continental light cars, the effort to put into these diminutive productions of the factory that high standard of work which alone justifies the use of the small engine. It has often been pointed out that the European and American schools of cheap car design arrive at the goal by different routes. The one makes use of a relatively large engine with small valves, while the other pins his faith to the small motor with an enormous capacity for revolutions. It hardly needs pointing out that to justify this latter policy the whole of the design must be in keeping with the standard of workmanship of its best part. Probably the general improvement in the small car is really the principal feature of the year as exemplified at Olympia. Certainly it has been well maintained by those whose names are already familiar and has received much emphasis at the hands of some of the new comers to the industry.

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The Motor Carriage. In our editorial comments of last week we drew attention to the increasing tendency shown to convert Olympia into a carriage-building exhibition. This doubtless comes of the movement towards the making of the whole car under one roof, as it were. Year by year we see more of the large motor manufacturing firms going in for body-building, and, naturally anxious as they are to show their abilities in every direction, their stands blaze forth in all the glory of ornate and luxurious coach-building. So marked has this movement become that there is, it seems to us, some danger of its being over done in the way that coach-building tends to become the more important branch of the trade. Indeed, one well-known maker put it quite frankly to us when he said that the chassis nowadays was nothing but an accessory, and that it was the body which counted. Exaggerated, no doubt, but still indicative of a particular state of mind regarding the far more important mechanical construction of the chassis. For this movement towards the construction of the body by chassis manufacturers, the coach-building trade has itself to thank in no small degree. One of the best known of London coach-builders remarked during the Show that his business was far from being what it used to be, and that people did not come to him and order expensive bodies as was the case two or three years ago. The reasons for this are that the carriage-builders have tried to "get rich quickly" in many cases, and the inordinate price asked for bodies has had a two-fold effect in causing the purchaser to wonder what it is for which he is paying, and to lead the motor manufacturer to think that if there are spoils going he may as well have his share. We are referring now to the most expensive class of closed body-work, and not to the ordinary "standard" type of touring car in which nothing but the factory-built body can compete, and which the old-fashioned coach-builder cannot touch on competitive terms.

Naturally, there are many other reflections that occur to the mind, but they are of a nature more suited to a technical review of design than to the editorial columns of the AUTO. Indeed, many of them have been so treated and for the minor lessons and impressions of Olympia we would refer the reader to other pages of this journal.

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A Reasonable Excuse. A case which is of some little interest to the cab-using public was heard by Mr. Plowden recently. A taxi-driver sued for the recovery of a small sum due for cab-fare, the defence set up being that the driver had declined to carry out his contract. The circumstances seem to have been that the cab was hired on a very foggy night, and that, after proceeding for some distance, the driver declined to proceed on the ground that to do so would have been dangerous. This was borne out by the evidence, and, very properly as we think, Mr. Plowden decided that the driver had done the best he could to perform his contract and awarded him the sum in dispute and his costs. Comment upon such a case is almost superfluous, and we only mention it so that the law of the matter may be made clear to our readers, though we trust that we do not number among our readers any who would take what we think to be the cross-grained view of things which the defendant in the case under review appears to have taken. Certainly it is not

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pleasant to be stranded in London on a night of dense fog, but inconvenience to the individual is of less account than danger to the community at large.

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Drunken Drivers.

Further to our comment of last week, on the controversy which Mr. Plowden's expression of opinion regarding drunken motor drivers has raised, we notice that another metropolitan magistrate has laid it down that, in his Court, there is to be only one penalty for the driver who comes before him on a charge of drunkenness which can be substantiated—a month's imprisonment. Within reasonable limits, we are quite in agreement with Mr. Hopkins, the magistrate in question. Most certainly, the driver who can be proved to have been so far under the influence of drink as to render him incapable of driving his vehicle without risk to the public, should go to gaol, no matter what his station in life, without the option of a financial penalty. But, as we pointed out last week, Mr. Plowden's is, to our way of thinking, the most sensible view, for he leaves some discretion to be exercised as to the precise degree of incapacity. By all means punish the drunken driver; but we shall soon get to an intolerable state of things if the man, chauffeur or otherwise, who has simply been dining and has taken a little drink, is to be treated on the same basis as the person who runs amok with his car through sheer drunken incapability. We know that it is an exceedingly difficult thing to say where the line should be drawn, and we do not, having regard to the terrible danger of the drunken man at the wheel, mind so much if the line is drawn a little closer than in ordinary cases, but we are frankly concerned at the uncompromising attitude of certain magistrates. Mr. Hopkins has a name for being an eminently fair-minded administrator of the law, and, therefore, it may be possible that his dictum may be taken to mean that he will require the clearest possible proof in the cases to which he refers. Then arises the difficulty of what constitutes proof. It is exceedingly hard to get any two persons to agree in a doubtful case of intoxication. We are reminded of the case of the corporal of the guard who was ordered by his second-in-command to place in the guard-room a "Tommy" who was lying helpless outside the barrack gate, and to charge him in the orderly room with being drunk. "Beggin' your pardon, Sir," said the corporal, "e' ain't drunk, Sir. I see 'is 'and move jest now." That was one man's idea of what constituted drunkenness, and between that and the view of the rabid teetotaller there is room for a never-ending variety of diagnoses. Much depends on the police and their fair-mindedness—and that is where the shoe may pinch most.

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Cheaper Transit for Petrol.

A special committee of the Port of London Authority has been enquiring for some time past into the subject of the conveyance and storage of petroleum and petroleum spirit imported into the Thames. It will be remembered one of the points made by the representatives of the petroleum companies, in giving evidence before the Petrol Committee, in justification of the ruling high prices of motor spirit was that the authorities gave them inadequate facilities for bringing the spirit to London. In this connection, it may be mentioned in passing, that the Port of London Committee estimates that the possible saving to be effected by bringing the tank steamers right up to London would be one-sixteenth of a penny per gallon!

The special committee has reported that in its judgment most serious risk would be inseparable from the presence of large vessels laden with petroleum spirit in the narrower and more crowded parts of the river, and that the Port Authority could not incur that risk without due regard to the interests of shipping generally and of the many industries situated on the river bank. The committee recommends, therefore, that Thames Haven should be retained as the limit for large vessels, but it advises, at the same time, that the facilities for the conveyance of spirit in barges above Thames Haven shall be extended. Hitherto, the capacity of tank barges employed in this traffic was limited to 45,000 gallons, and a maximum number of four vessels could be towed together. The committee's recommendation is that the limit of capacity of vessels not provided with motive power should be increased to 75,000 gallons, and also that licences should be given for self-propelled, specially-constructed tank-craft of a total capacity of not more than 150,000 gallons. These craft, in the committee's opinion, should be equipped with internal combustion engines of the Diesel type, in which ignition is effected by some other means than by any form of spark, flame, or hot tube.

The Port of London Authority has adopted its committee's recommendations, and the by-laws are to be revised in accordance therewith. We are afraid this information is of scarcely more than academic interest to the motorist, for the saving entailed to the petroleum companies is quite infinitesimal, and it is wildly improbable that any reduction in the price of motor spirit will ensue as a consequence of the improved facilities. It may possibly have some little future effect, inasmuch as it will make it easier for the companies to maintain their stocks in London, though we greatly doubt it.

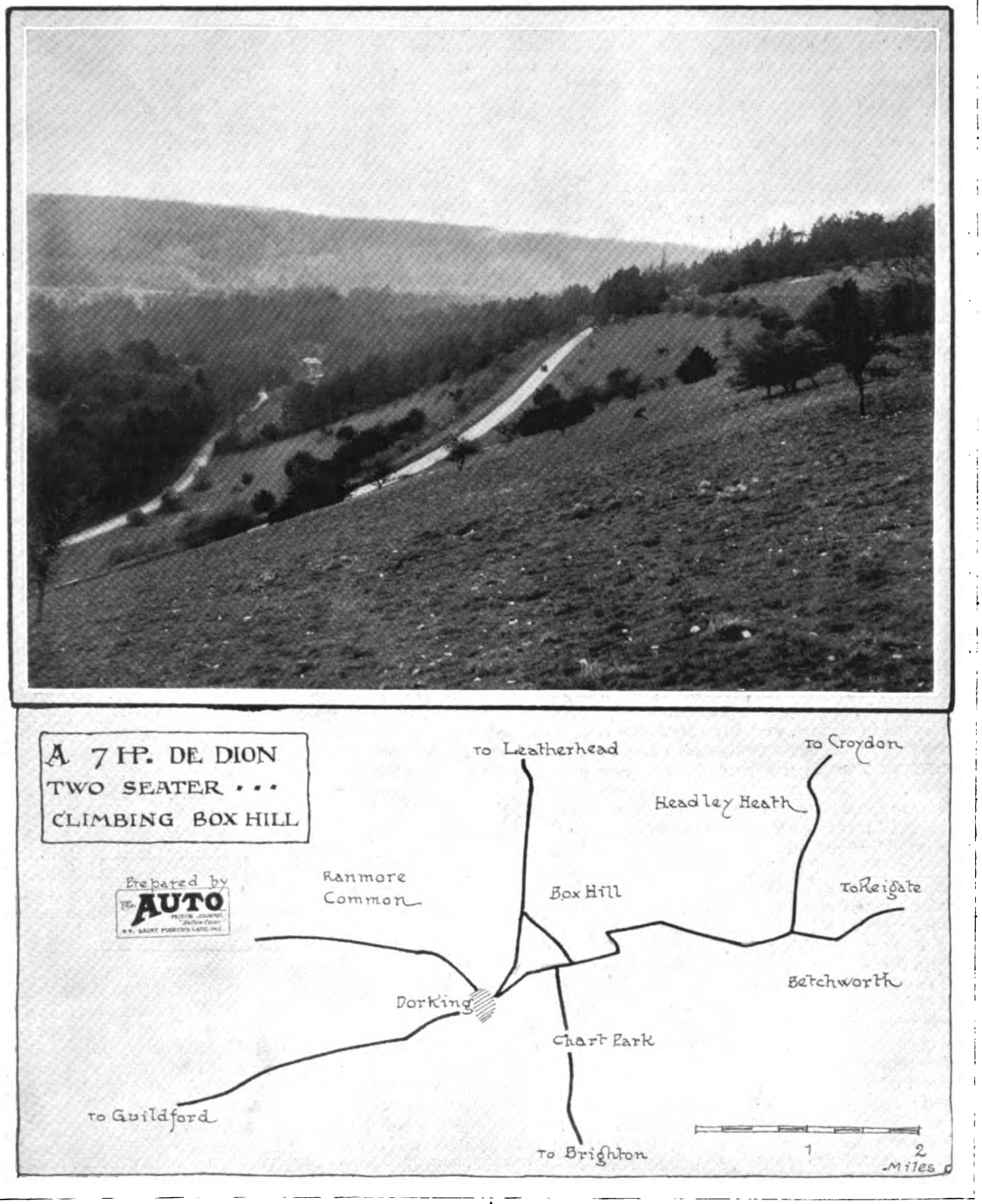
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C.M.U.A. and Fuel Question.

APPROVAL has been given by the General Committee of the Commercial Motor Users Association to the resolutions of its fuel committee, that the Association's representatives on the Petrol Committee should press home the necessity of developing a home producing liquid fuel for internal combustion engines, and that the C.M.U.A. do all in its power to decrease the demand for foreign fuel: (*a*) by encouraging the use of steam engines in motor cars, and (*b*) by encouraging the use of gas producers in internal combustion engines for commercial motor vehicles.

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WITH THE CAMERA AND THE CAR.



A VIEW OF BOX HILL BEYOND BURFORD BRIDGE HOTEL, TOWARDS DORKING.—This view was obtained under difficulty by a motorist with the object of including in the picture his little "Baby" model 2-cyl. 7-h.p. 2-seater De Dion car during its 10-m.p.h. climb (two aboard and all fitments) up this mile hill with its 500 ft. rise.

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FUEL TESTS AND THE R.A.C.

INTERESTING information appears in the current Journal of the Royal Automobile Club to the effect that the Expert and Technical Committee of the Club has, so to speak, "turned down" the proposal to hold a public competition for testing fuels other than petrol, but that it has recommended the Club to proceed with the organisation of trials of a more individual character in which different fuels can be tested separately. The resolution in question takes the following form :—

That the following fuels for internal combustion engines to be tested :—Coal or other forms of carbon in a solid state ; all petroleum products except petrol ; benzol ; mixtures of any two of the foregoing or of any one with a mixture of petrol ; while the Committee would consider any other fuel submitted to it on proof being shown that it was a commercial proposition.

Superficially, the conclusions of the Committee may appear to be a little contradictory in effect, but, as we understand the situation, in the absence of any details as to the trend in the discussion of the Committee, we presume that the members came to the conclusion that they could not, as technical men, say that a public competition, such, for instance, as a race, would necessarily prove anything as to the merits of the various fuels used, but that they could recommend experiments being conducted on more comprehensive lines so that the results might really be some indication as to the practical utility of the fuel employed.

If what we suspect is true, then we are entirely in accord with the views of the Technical Committee, for we know how extremely difficult it is to devise a simple, open competition that will really produce the desired result. In the mere specification of the conditions of a race, a premium is of necessity placed upon something, and it is extremely difficult to select the particular thing on which the premium may most profitably be placed. When the Club allowed races to be held under their rating formula, which, by the way, was originated for catalogue purposes only, they placed a premium on long stroke and high speed in engines, and in so far as the development of the long stroke high-speed engine has been useful in practice, the encouragement of the club has served its purpose.

Now in the matter of fuels, it is not by any means to be assumed that the arbitrary conditions selected for the race would necessarily provide what might be called scientific information about the fuel in question. For example, if one said that the race was to be run with standard petrol engines, it might be that the ordinary petrol engine would prove fundamentally unsuited for use with a very promising fuel. Alternatively, it might happen that a fuel that suited the ordinary petrol engine well enough for the purposes of the race, might prove an undesirable substitute for petrol for ordinary purposes. For example, on the Continent there have been competitions galore for alcohol, but the present use of alcohol for motor vehicle propulsion in Germany in particular seems to be extremely small in comparison with the stimulus applied through competitive channels and also by other means. In England where the use of alcohol is impossible on account of the duty, we are apt to regard the duty as the only obstacle, and to be content with the deduction that if an alcohol-driven car can be made to win a race that, therefore, alcohol must be a desirable substitute for petrol on the grounds that it could be home produced at a low price, and sold cheaply if the duty, on spirit for industrial purposes, were removed. If one may judge by the apparent conditions prevailing elsewhere, however, the situation is not quite so simple, and if the Expert and Technical Committee desires to maintain any reputation for being either expert or technical, we can readily understand its reluctance to commit itself to offering the Club, as a body, any assurance that a rough and tumble open competition would enable the onlookers to see any further into the fuel question than they do at present.

There is just one aspect of the case, however, that might conceivably affect the Club in the matter of a competition as such. Open competitions are events of excitement, and exercise a kind of irresponsible encouragement all round, which is often a short cut to producing a desired effect that more sober means might fail to achieve. After all, if there is going to be any considerable change in the nature of the fuel used, the transition stage will interest motorists, who at present own cars, more than anyone else, and, so far as they are concerned, they will want to know what the new fuel is like on their own machines. The idea of changing the engine as a whole would be out of the question, but if it is only a matter of changing the carburettor, hundreds of private motorists would change their carburettors on the spot for the mere fun of the thing, and there would be carried on forthwith in the open-air laboratory of the world at large a great mass of "testing" that might be invaluable from its mere bulk if it were seriously watched by an expert and technical body.

There is all the difference in the world between this method of procedure and one that is based on the assumption that because a particular fuel working in a special carburettor on a given engine wins a certain prize that it has therefore received the cachet of the R.A.C. Expert and Technical Committee as the "best thing" for the motorist. Naturally the man who wins the open competition is going to shout in the silent voice of advertising, which raises itself even above the housetops and penetrates even beyond the sanctuary of brick walls, but what of that these days when an advertisement hoarding forms, so to speak, the middle horizon of the outlook of nine-tenths of the community on life. If the Expert and and Technical Committee said "such and such" was so, the majority would discredit their verdict as being academical. When, as seems to us to be the case in this instance, the complications of the "broad practical issue" are realised by the technical mind and the simple competition is *not* recommended, the majority will doubtless again say that the objections are merely theoretical.

Summing up, therefore, we are inclined to think that if the R.A.C., as a society of encouragement, organised a race for fuels other than petrol and did so on the clear understanding that no particular significance from a technical point of view was to attach to the results, but that the event was held in order that people might actually see cars running with other fuels than petrol, such action would be justified. And if the R.A.C. further decided that the fuel question was sufficiently a matter of interest to warrant scientific investigation, then we think that it might set off the irresponsible competition by establishing the foundations of really responsible research. Money is, of course, what is needed for work of this sort: both money and time. We assume that the brains will be forthcoming if the money is there to pay for them. In this connection the R.A.C. might well co-operate with the Institution of

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Automobile Engineers and the Society of Motor Manufacturers and Traders. They might establish a Fuels Research Committee of paid men, whose business it would be to advise certain lines of research, and to analyse the results of experiments—as is done, for instance, by the Advisory Committee for Aeronautics on behalf of the Government. The Club's interest in the matter would be parental, and the influence of its vote would be in the nature of a signpost pointing always towards the main issue that the work of the Committee should endeavour to achieve. The Institution's business would represent the technical interest proper, while the Society's scope would be to bring the industry into sympathy with the purpose of the work and to assist in the conduct of the research wherever existing conditions in the workshops of individual firms might seem to offer some particular facilities.

We believe that some such attempt as this would be well worthy of the joint enterprise of the bodies concerned, and in any case it would be a very fine effort in co-operative progress, which would certainly commend itself to the onlookers at large.

In connection with the proposed fuel tests which the R.A.C. intends to organise, and which are fully dealt with Editorially, above, the following extract from the minutes of the Technical and Expert Committee are of more than passing interest. The serious business of the Committee was commenced by the passing of a resolution, proposed by Col. Crompton, seconded by Mr. T. B. Browne, to the effect:

That this Committee considers that it is not desirable at the present time to hold a public competition of vehicles propelled by fuels other than exclusively petrol.

The question of the series of trials with liquid, solid, and gaseous fuels for both pleasure and commercial motor vehicles was then discussed.

It was resolved, on the motion of the Chairman, seconded by Sir David Salomons, Bart.:—

That the following fuels for internal combustion engines to be tested:—Coal or other forms of carbon in a solid state; all petroleum products except petrol; benzol; mixtures of any two of the foregoing or of any one with a mixture of petrol: while the Committee would consider any other fuel submitted to it on proof being shown that it was a commercial proposition.

It was not thought necessary to test alcohol, as, in the first place, the duty on it is prohibitive, and, in the second place, exhaustive experiments with alcohol had been conducted in France, Germany and America, and the reports were available.

Col. R. E. B. Crompton, C.B., then moved, Mr. A. Duckham seconded, and it was resolved:—

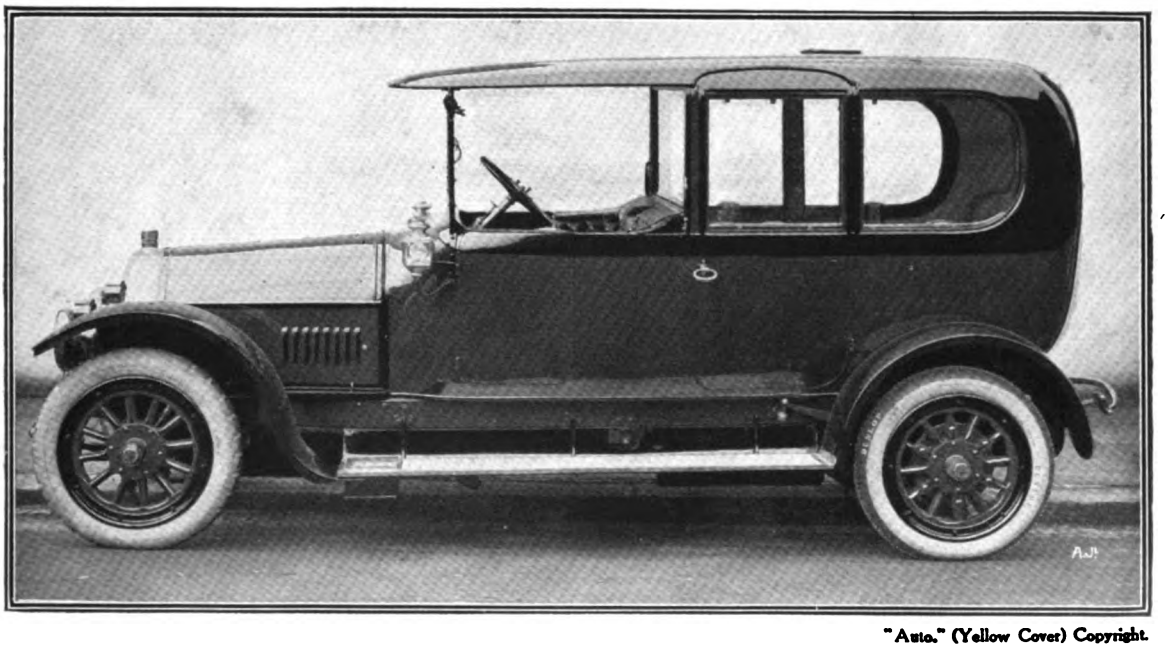
That makers of carburettors or equivalent devices be informed that the Club desires entries of devices suitable for any one of the above-mentioned fuels—the maker to select the fuel from the list—and that a prize or prizes would be given in each division, consideration being given to the applicability of the carburettor or equivalent device to the general type of internal combustion engine, although an entrant could, if he wished, submit his device with an appropriate engine. In awarding the prizes, the Club would give extra credit for the adaptability of the device to an engine of the ordinary type, but, in order to encourage inventors, it will be willing to consider any device submitted.

As regards the general prize fund, it was resolved, on the motion of Dr. W. Watson, seconded by Col. R. E. B. Crompton:—

That this Committee considers that in order to carry out these important trials in a thoroughly satisfactory manner it will be necessary to collect a prize fund amounting to at least £1,500, while a further sum, which cannot be estimated at the present time, will be required to cover the expenses of the trials.

It was also decided to recommend that there should be no entrance fee for the trials in the case of approved entries, and that the club should reserve to itself the right to withhold any or all the prizes.

The following sub-committee was appointed to draft the regulations: Mr. G. H. Baillie, Mr. A. Duckham, F.C.S., Dr. W. Watson, F.R.S.



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A new style of coachwork recently introduced is the dome-topped limousine, and the above photograph of a 35-45-h.p. Benz, with a body by the Regent Carriage Co., is a very fine example of the type.

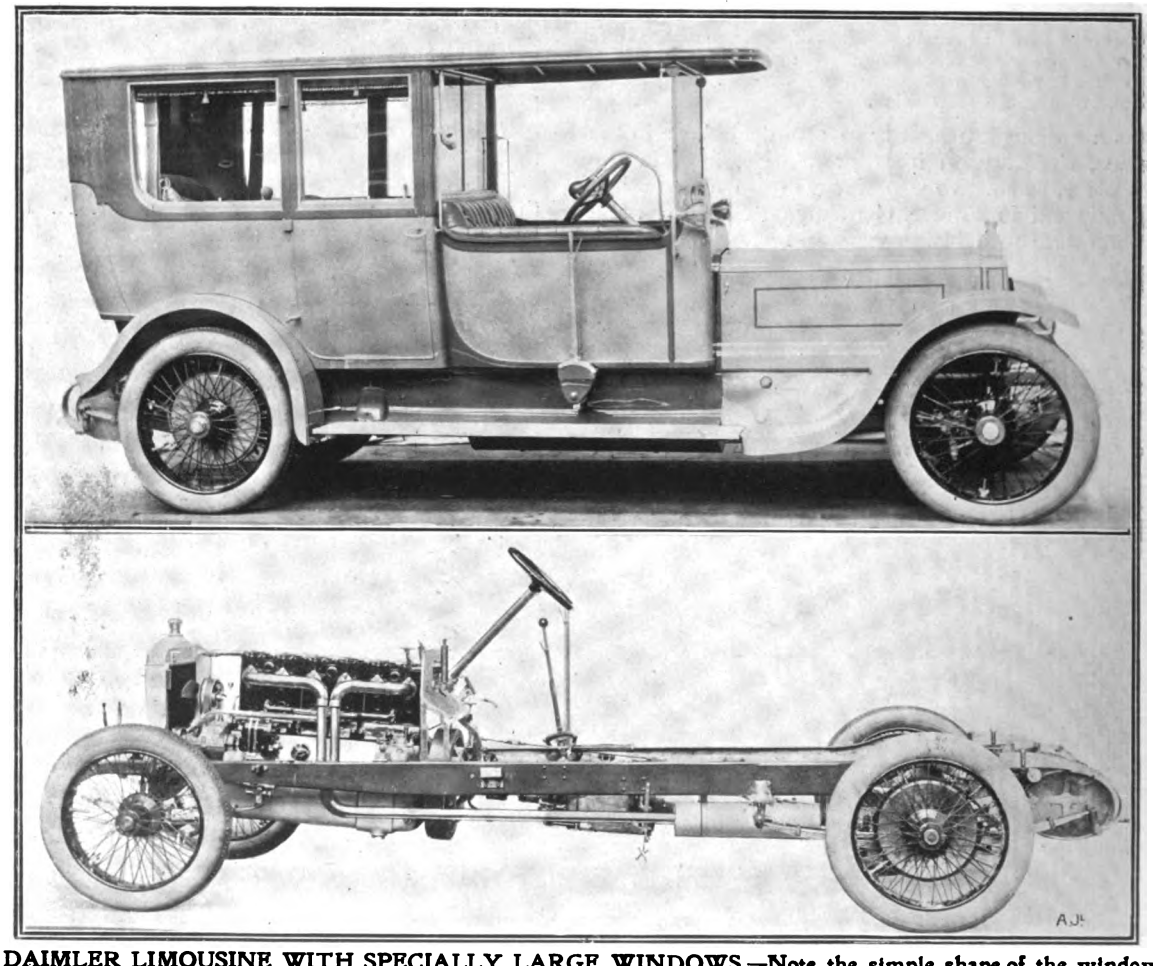
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OLYMPIA MOTOR SHOW 1912

AS SEEN BY A CHAUFFEUR.

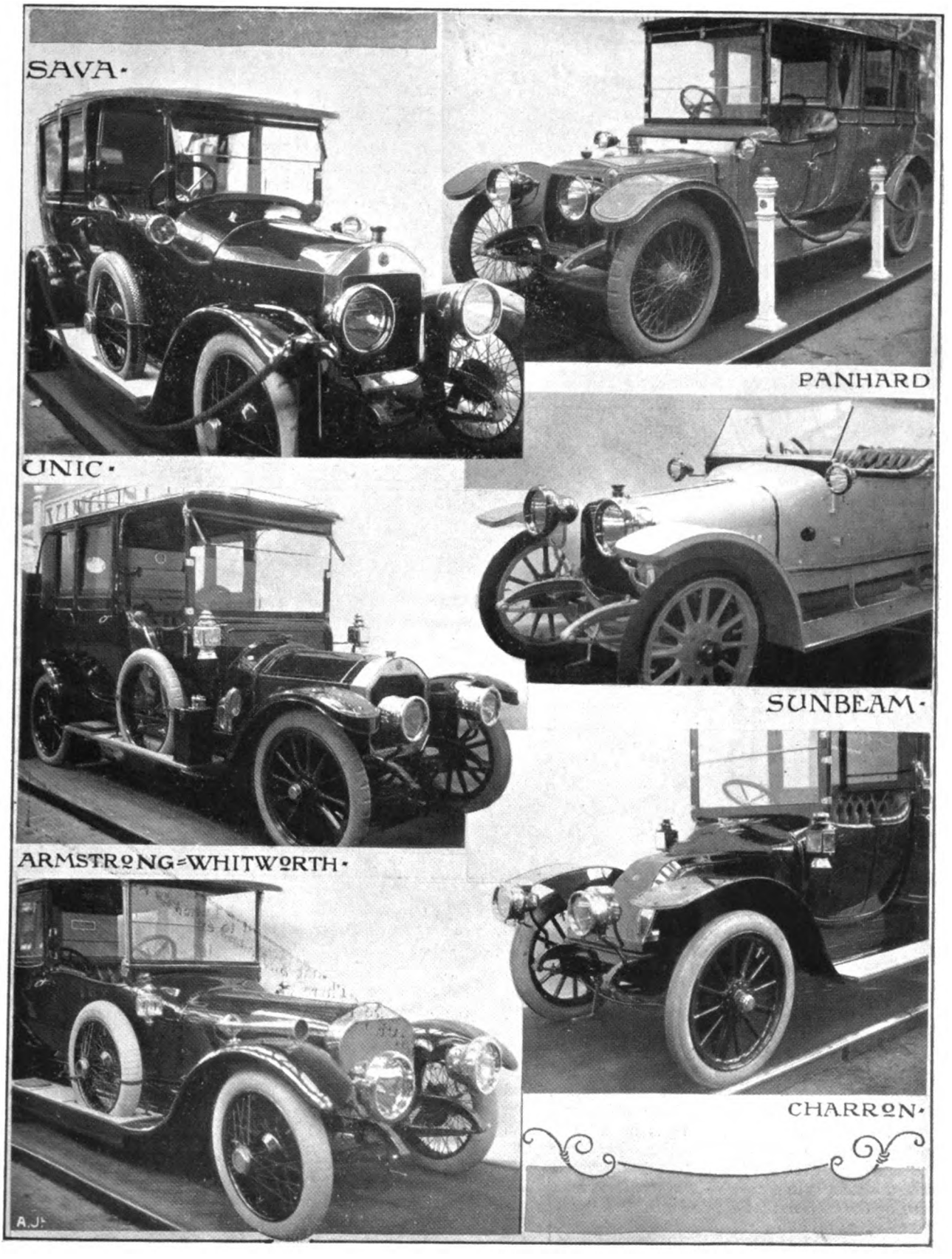
BEFORE I deal with those matters which I mentioned in the concluding remarks of my notes last week as the subject of this article, I feel I ought to say first something on one or two points of the chassis, which, for lack of space, I have had to leave out so far.

First and foremost amongst these is the all-important subject of brakes, over which I have spent many an hour at Olympia. There is no need for me to enlarge on the value I attach to really good and efficient brakes; but in order to illustrate my way of regarding them as of first and foremost importance, I may mention here that, whenever I have to instruct a novice in the handling and driving of a motor car, the first thing I teach him is, how to pull up the car; everything else comes afterwards. I wish more people would do this, there would be far fewer accidents. I am glad to say that makers are slowly beginning to realise that good brakes are as essential—or even more so—as a good engine, with the result that a very marked improvement, especially in their size, is to be noticed on almost every stand. Mind you, mark the *almost;* there are quite a number of makers to whom the almost applies, and every one of them is one too many. ! Brake-drums have been increased both in diameter and in width, but their larger size has led to the abolition of the external contracting type of transmission brake, which I for one much prefer to the internal expanding brake behind the gear-box on account of its greater accessibility and its tendency to throw off any grease that may leak on to the drum from the gear-box. The drum of an internal expanding brake cannot clean itself, and has to be washed out more or less frequently. Some makers, I notice, are quite aware of this and drill a number of holes in the circumference of their brake-drums, through which the lubricant may, or may not, escape. But, on the other hand, I am



A DAIMLER LIMOUSINE WITH SPECIALLY LARGE WINDOWS.—Note the simple shape of the windows and the finished appearance obtained from the fringe of the blind; and, below, side view of the Daimler *chassis de luxe.*

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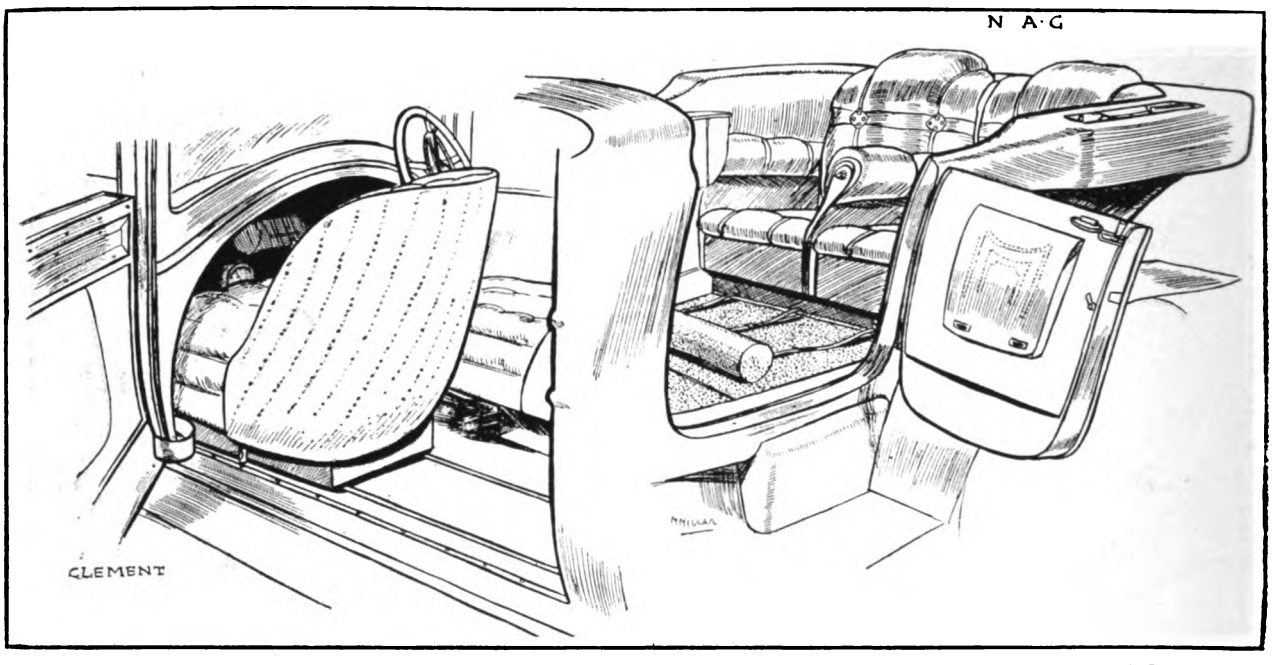
MODERN BONNETS.—The above photographs illustrate a variety of interesting attempts to produce an artistic junction between bonnet and radiator. The Sava illustrates the expanding bonnet, which is also carried out in the Armstrong-Whitworth and Sunbeam cars. The Panhard introduces a polished dashboard panel, the Unic places the petrol tank, and the Charron has its radiator, in front of the dash.

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ready to recognise that the expanding type of transmission-brake has advantages which to some extent make up for its drawbacks in other directions. Some firms have mounted the drums so as to be readily detachable either for cleaning or for the purpose of facilitating the adjustment of the shoes, and many makers, Stoewers, for instance, who have done this have also gone one step further and made the drums and shoes of the same size as those used on the rear wheels, so that they are interchangeable.

The most noteworthy change in the brakes of the cars at Olympia is the tendency on the part of some designers to do away with the gear-brake altogether; and I, personally, am not sorry. The orthodox high-speed transmission-brake throws a cruel strain on all the gears, and, however well it may be made, is never very accessible. In most cases, where the differential-brake has been discarded, the rear-brake drums have been widened and given a larger diameter, so as to accommodate a second pair of shoes in their interior. If I remember rightly, Panhards were the first to introduce this practice in their 15-h.p. model at last year's Show; and now Sheffield-Simplex, in their new 30-h.p. model, have followed their example. But I am not at all sure whether the practice of the latter firm, as shown in their 1912 25-h.p. model, where both brakes acted on two concentric drums on the rear wheels was not the better of the two. Where both brakes are acting on one and the same drum, there is no advantage in changing over from one brake to the other on a long descent, because even if it is done the drum is not allowed to cool down as is the case with separate drums. The drums, by the way, must be two separate pieces or the metal will heat up all over.

Much attention has also been paid to the adjustments of the brakes, which now can be effected in almost every case without the aid of tools. Most of these self-locking adjusting nuts are very accessibly placed, either immediately under the floor-boards of the driver's seat, and some have even been brought outside the frame where the adjustment of the gear-brake is concerned. The accessibility of the rear-brake adjustment in many cars still leaves much to be desired, but I am quite aware that this is somewhat of a problem. That it can be overcome, however, if the makers only fully realise the need of it, I feel convinced. It is already in part accomplished by the Sheffield-Simplex people, who provide an ingenious adjustment in a rather inaccessible position underneath the rear axle, which, in addition, is obstructed by the petrol tank. But they get over the difficulty in an excellent way in providing a special tool, by means of which the adjusting nuts can be gripped easily from behind, and the brakes set to a nicety. Besides facilitating the operation of brake adjustment, this tool forms a continuous reminder for the chauffeur to remember his brakes, which he is all too liable to forget, if the adjustment is either difficult to get at or missing altogether.



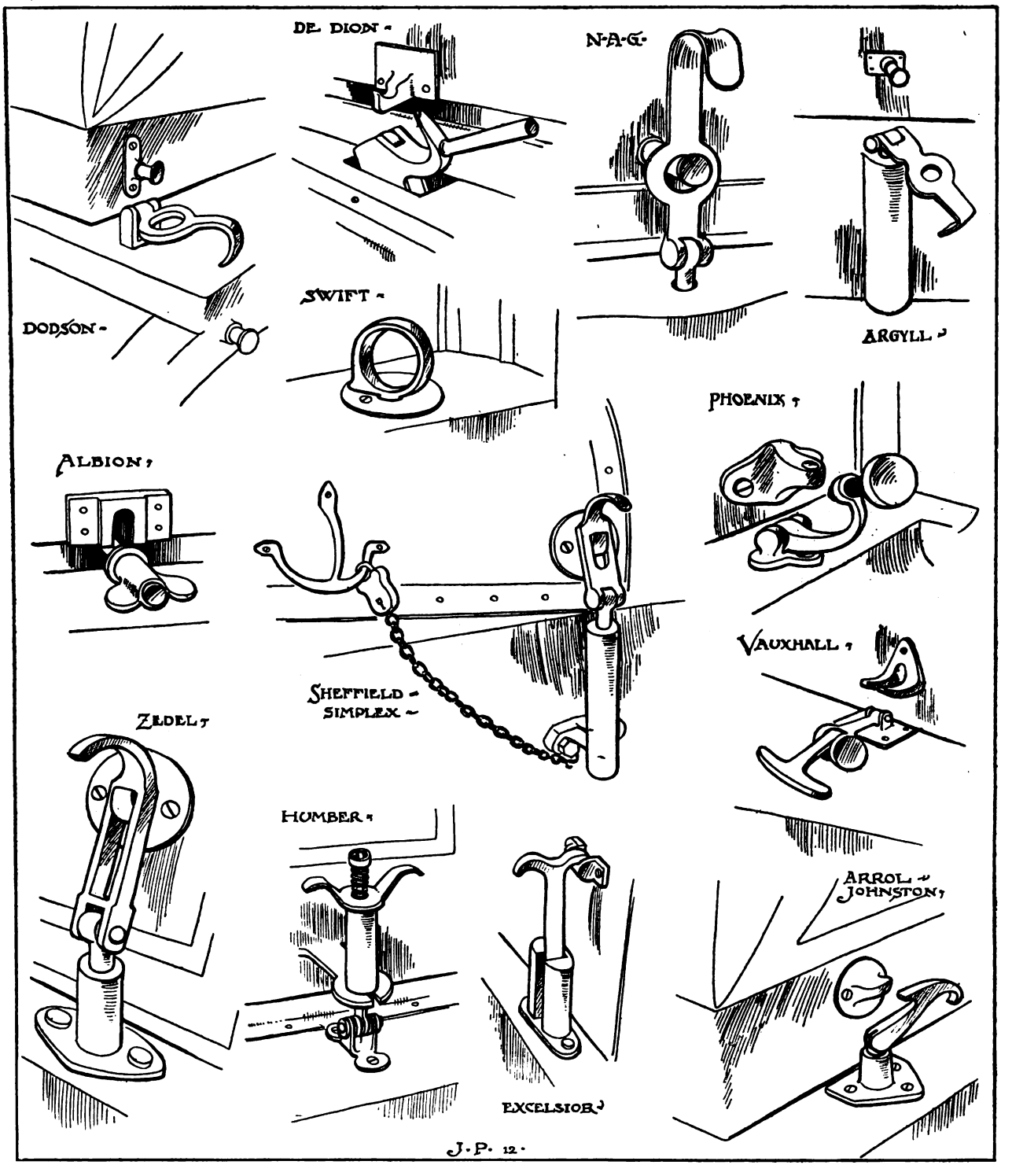
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COACHWORK DETAILS FROM OLYMPIA.—How the hood folds away into a kind of gutter round the back of the N.A.G. car. How the front seats of the Clement car slide on rails, and can be adjusted to any convenient distance from the dashboard.

But let me say that *one* adjustment to each brake is not enough. There ought to be at least two to each brake as are to be found in a few cars, like the Rolls-Royce, Arrol-Johnston, and Chenard-Walcker. One of these adjustments is to account for wear of the shoes proper, while the other takes up slackness of the rods, caused either by stretching or wear in the joints, or both. If steering joints are considered worth lubricating and protecting in one way or another, why not the joints of the brake rods? I remember these joints being covered with leather shoes on the Standard Cars as long as five years ago, but have never noticed it elsewhere.

Although most rear brakes are now compensated, there still remain quite a number of well-designed and splendidly made vehicles, like the Isotta Fraschini and Berliets, whose brakes are not provided with any equalisers. These firms take the view that because it is impossible to actually balance the friction or stopping power of the two brakes owing to grit and oil on the

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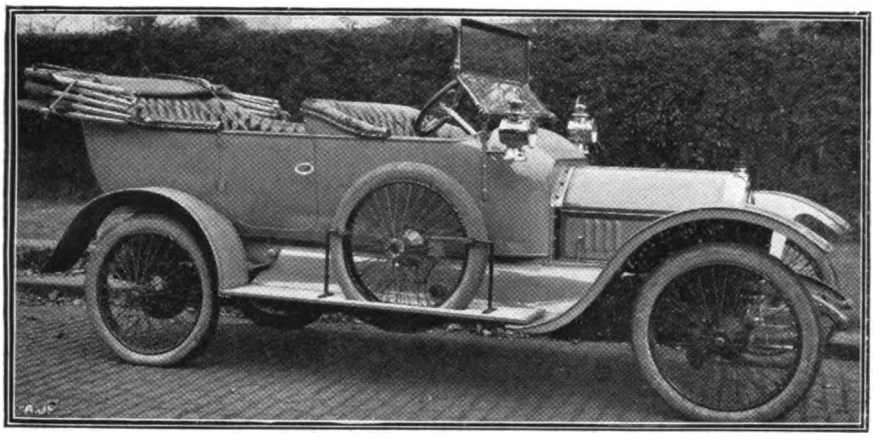


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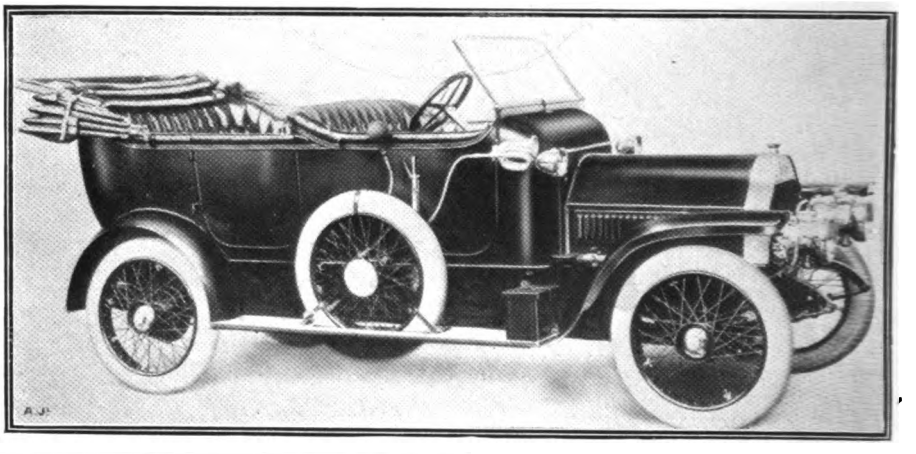
A STUDY IN BONNET FASTENINGS.—If there is one small detail that offers scope for more improvement than another it is the bonnet fastenings of a modern car. There is nothing so exasperating as trying to replace the average hook arrangement on a freezing cold night when the spring has got rusty and the joints are stiff, and the handle is either inaccessible or so designed that it cuts the fingers. In principle we think that the hook that gives a direct pull on the spring is a mistake; the handle ought to be capable of being used as a lever against the projection on the bonnet as a fulcrum. Among the above sketches the Vauxhall fastening comes nearest to what we mean, as it introduces the principle of leverage. The thumb-screw type is as good as any if the slotted abutment for the screw is properly made.

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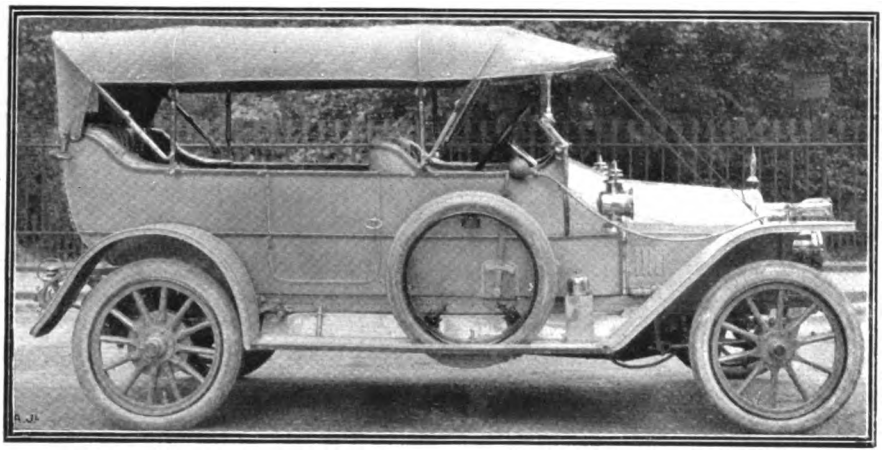
SOME OPEN TOURING CARS.



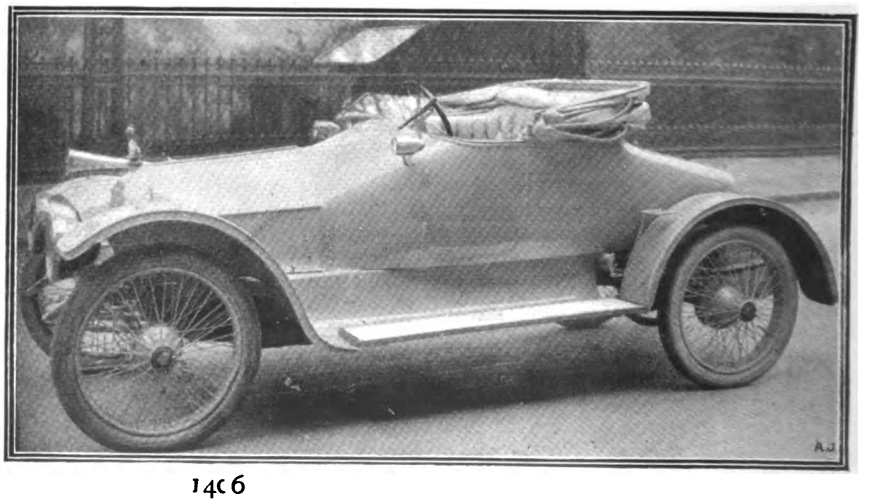
The Crossley, illustrated as a standard five-seated torpedo on a 15-h.p. chassis.



The Humber, illustrated as a five-seated flush-sided body on a 20-h.p. chassis.



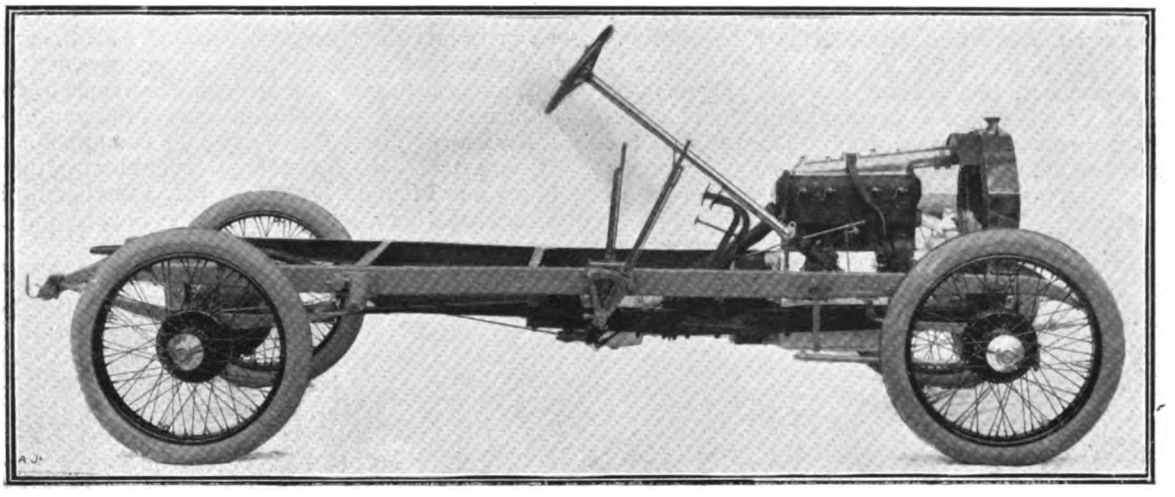
The Stoewer, illustrated as a standard touring car on a 10-16-h.p. chassis at 265 gns. complete.



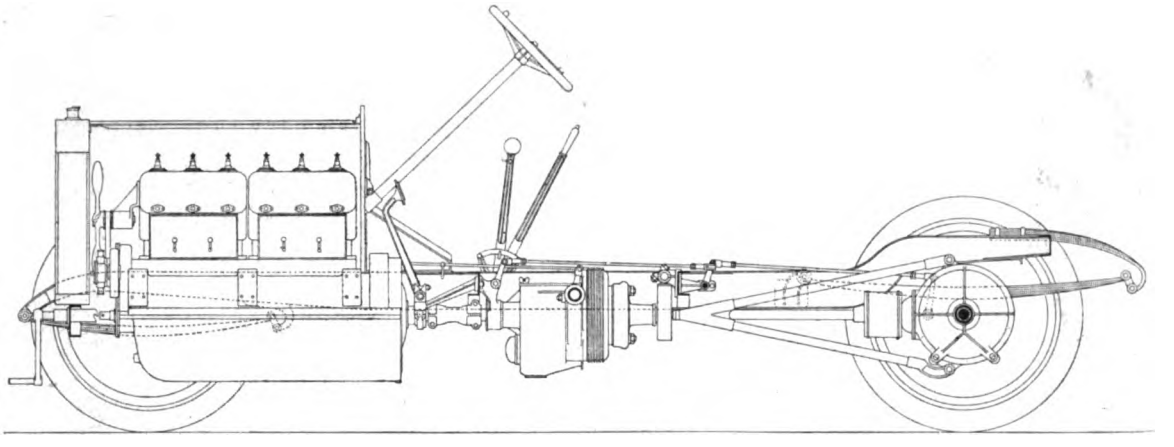
The Austrian-Daimler, illustrated as a sporting two-seater on a 16-27-h.p. chassis.

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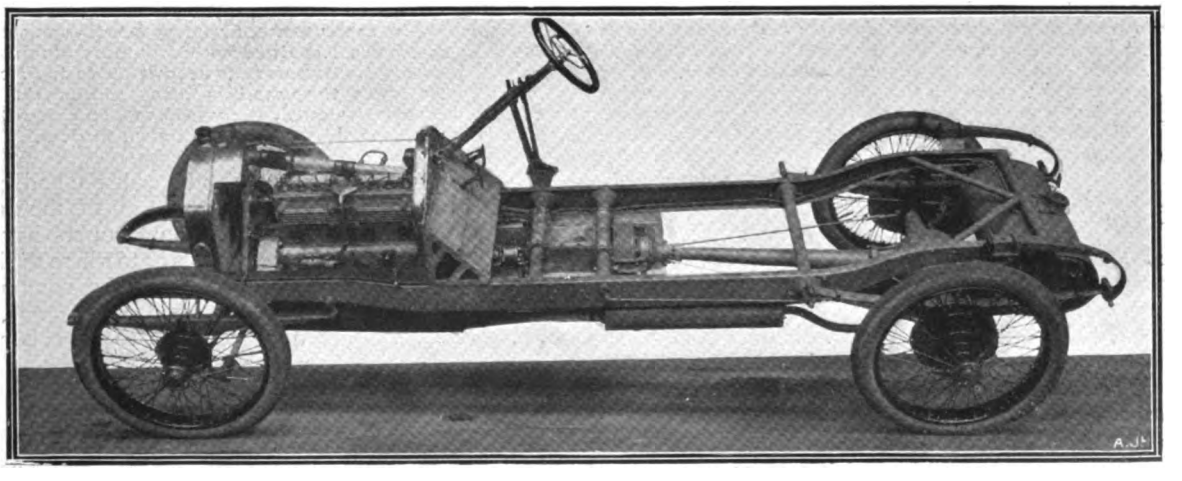
VARIATION IN CHASSIS DESIGN.



THE 14-H.P. HUMBER.—Note the underframe that carries the engine and gear-box.



THE NEW 25-30-H.P. 6-CYL. MASS.—Note that the engine is carried on the main frame, that the propeller-shaft is open and universally-jointed at both ends, the torque being resisted by an independent stay.



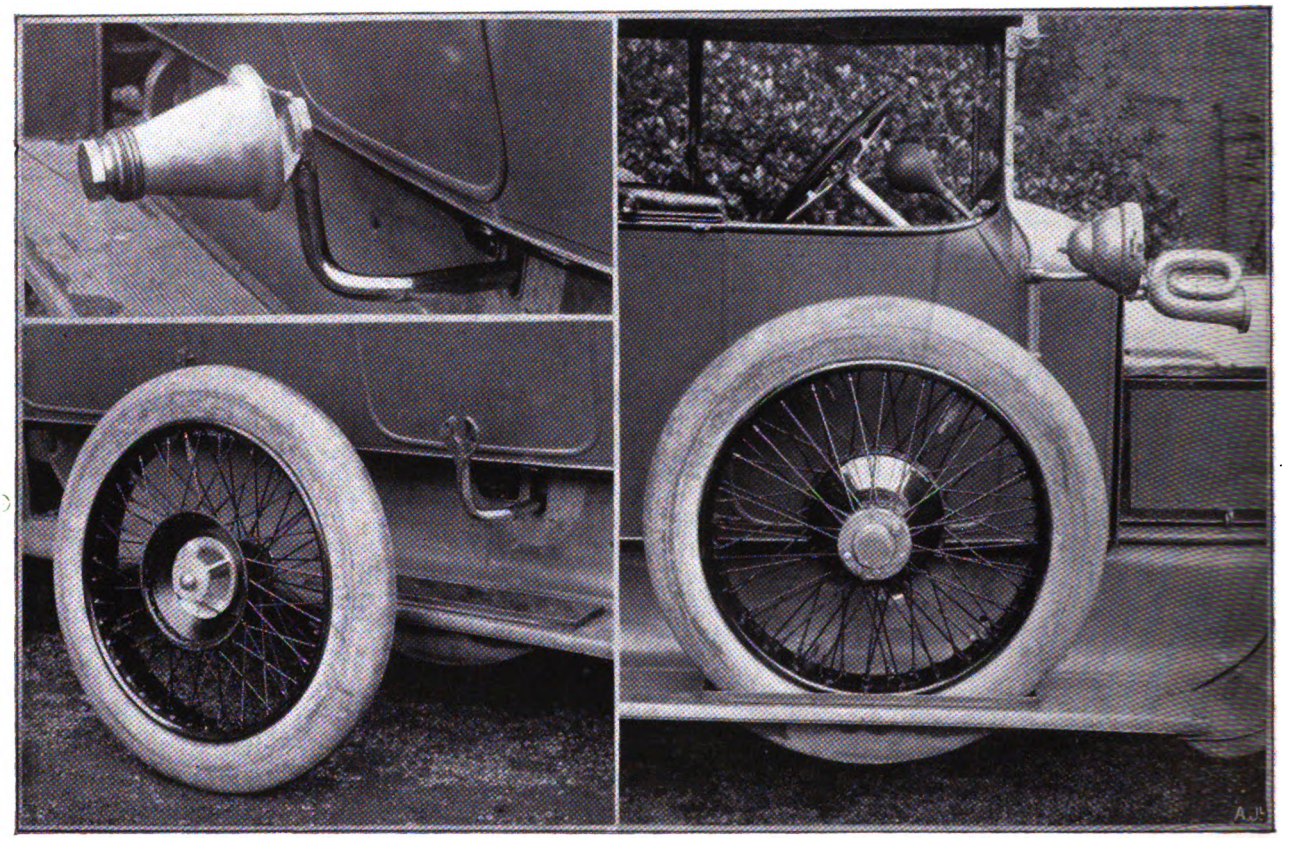
THE 20-H.P. CROSSLEY.—Note the tubular cross-members that carry the engine and gear-box; also observe the tubular propeller-shaft casing.

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surfaces, that it is *therefore* unnecessary to balance the *pull*. With this "therefore" I disagree. The absence of a compensator in the rear brake puts just that extra need for nicety of adjustment all on the shoulders of the chauffeur, without giving him any corresponding advantage. Compensated brakes will at least act on both drums together, even if unequally, unless they are hopelessly out of adjustment, but a *small* error of judgment, it seems to me, might suffice to prevent one brake of a non-compensated pair from acting at all. The truth of the matter is, I think, that the brake mechanism compensates itself by "give," but I would rather see a "balancer" in the rod all the same.

In the Isotta Fraschini chassis, I notice that the brake-pedal is connected up to the rear-wheel brakes, while the side lever works the front-wheel brakes, an arrangement which is just the reverse of what we used to see in the front-wheel brakes of English manufacturers.

Another matter of considerable importance to the professional motor driver is the position of the control-levers. I have aired my views on how they should be placed in my notes two weeks ago. It only remains for me, therefore, to say how I found them at Olympia. I was not displeased with what I saw, especially on the Spyker and Arrol-



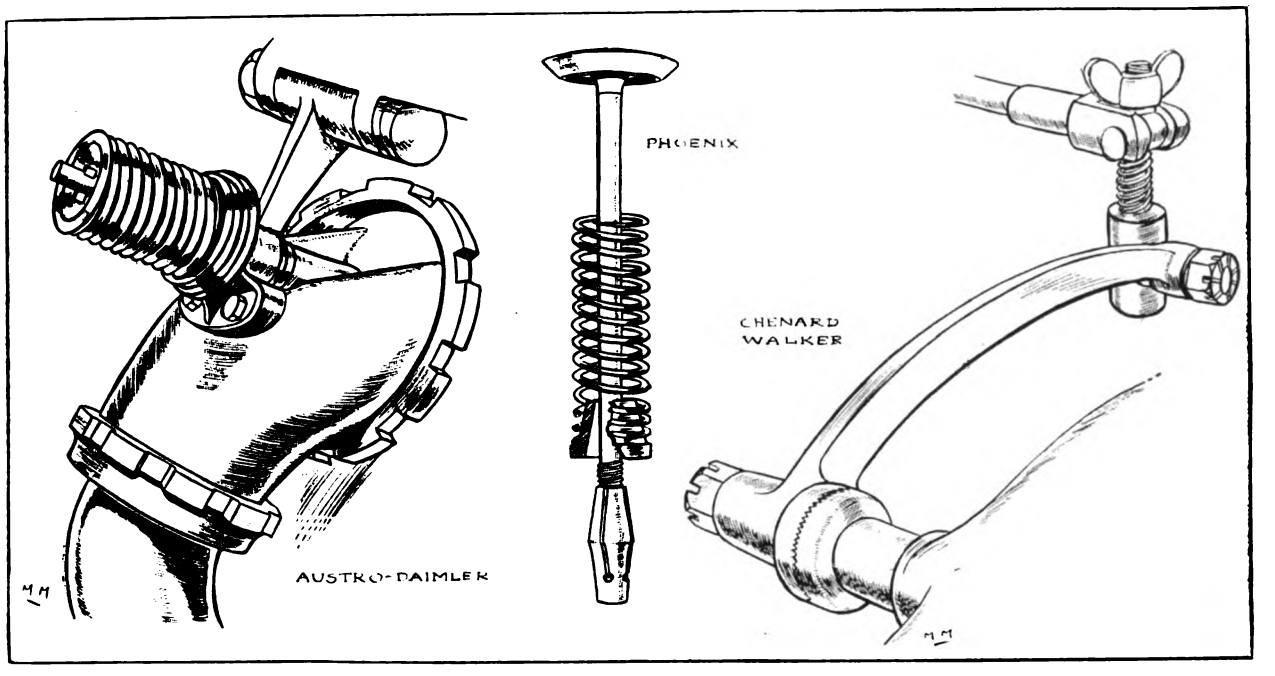
"Auto." (Yellow Cover) Copyright.

A WELL-DESIGNED SPARE WHEEL CARRIER.—Brackets that embrace the tyre are apt to cause local weakness in the tread, according to the Wolseley Co.'s experience, and this firm has, in consequence, designed a well-thought-out bracket for their cars, so that the wheel is supported by the hub. The spare wheel is fitted with a dummy aluminium hub, which acts as a dust excluder, and, in order to attach the wheel, it is merely necessary to drop it on to the slotted bracket, and to tighten up the hub nut with the same spanner that is used when the wheel is being put on the hub proper. The great advantage of this design is that, owing to the bracket being slotted, the wheel can be carried low down with the tyre projecting through the footboard, which is not ordinarily possible with such devices.

Of the comparatively large number of front-wheel-brakes I have seen during the last two years, only one remains—the Argyll. And one new-comer has arrived—the Isotta Fraschini—from Italy. But the Argyll brake is not a pure front-wheel-brake in so far as it acts simultaneously on all four wheels and that the brakes are connected diagonally, that is to say, the near front-wheel and off rear-wheel brakes are coupled and compensated and *vice versa*. Although, as I have said before, I have not had any practical experience with this system, I think a very great deal of it, and my good opinion is backed up by a friend of mine who has now had one of the new 15·9 Argylls for some six months or so and is full of praise of their excellent brakes which he says, incidentally, make skidding next to impossible, however suddenly they may be jammed on.

Johnston, where the levers are both inside the body panel, and yet handy and quite out of the way of the driver's right leg. But the majority of manufacturers have not yet, it appears, made up their minds as to where the levers should be, and have been satisfied with the compromise of placing one inside and one outside. There is, however, very little, if any, doubt about it, that this is only a compromise, which sooner or later will give way to both being placed inside. But where the levers are placed on either side of the panel most makers have forgotten to reverse their order and have made the mistake of placing the gear-lever inside and the brake outside. That is just the opposite of what, to my mind, it should be. Where both levers are on the same

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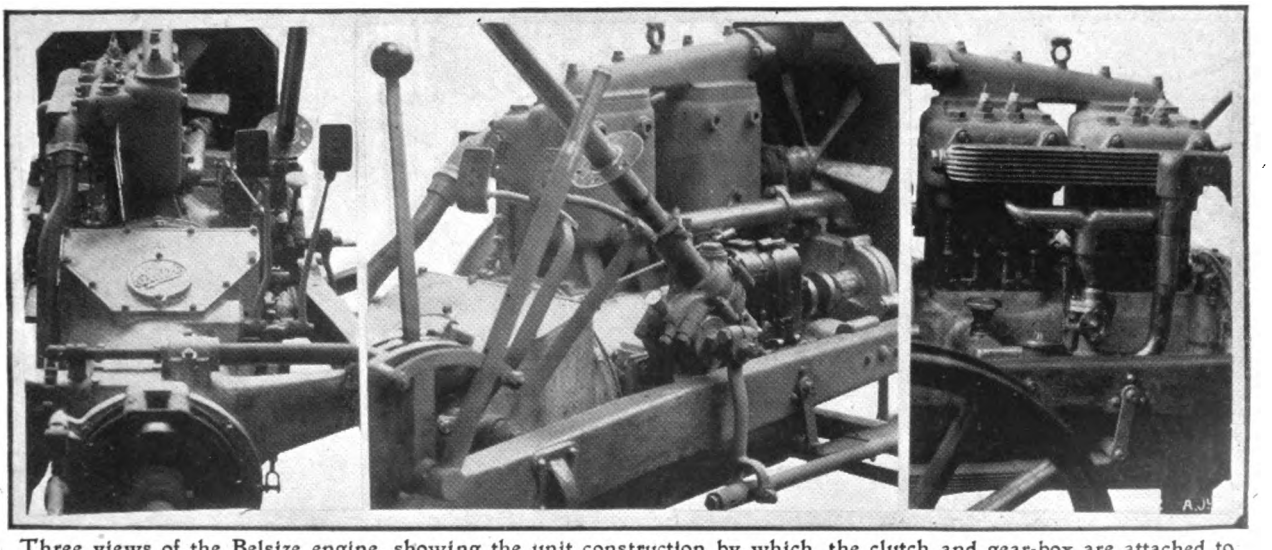
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DETAILS FROM OLYMPIA.—The inclined inlet-valve on the special Austro-Daimler model. A very neat method of securing the valve spring on the Phœnix engine. The serrated adjustment of the foot-brake lever on the Chenard-Walcker chassis.

side, either in or out, it is immaterial which one is outside, and the brake is generally placed there for ease of manufacture. But when you interpose the panel of the body between the two levers it is imperative that the brake should be the handier of the two and should be *inside*, because it may be wanted in an emergency, and by the time you get your hand over a tall body panel and catch hold of your outside brake lever it may be too late. You always know a few seconds beforehand when you want your gear lever, but you may want your brake any moment without warning, and a fraction of a second's delay in reaching it may make all the difference in the end.

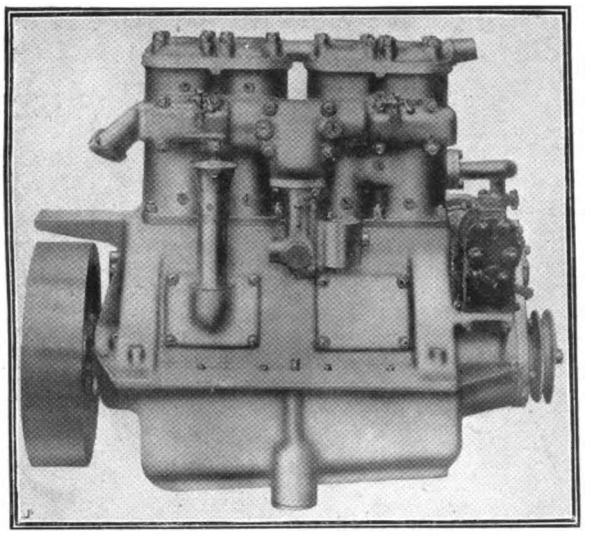
There is also a pleasing increase in the number of hinged change-speed levers, so-called, "rocking"-gate control. It gives the driver confidence in the changing-gear, because, even if the horizontal tube should bind somewhere, the leverage obtained by the "rocking" of the lever easily overcomes it, and ensures a light, quick, and certain change. Another control feature for which I, a person of short stature, am very grateful, is the large number of adjustable pedals; and I believe tall people have even more reason to rejoice over this step in the right direction.

Steering gears remain very much the same as last year, but I notice more makers, chiefly English firms, adopting the complete worm-wheel instead of the sector in the steering-box, with consequent increase in the length of life of the whole gear. A few manufacturers, Wolseley's in particular, have studied the joints of the steering-rods, and this firm has brought out a really fine joint which is quite self-contained, retains the lubricant, and has a very large bearing surface. No ugly and messy leather



Three views of the Belsize engine, showing the unit construction by which the clutch and gear-box are attached to the engine bed.

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The Argyll single-sleeve-valve engine.

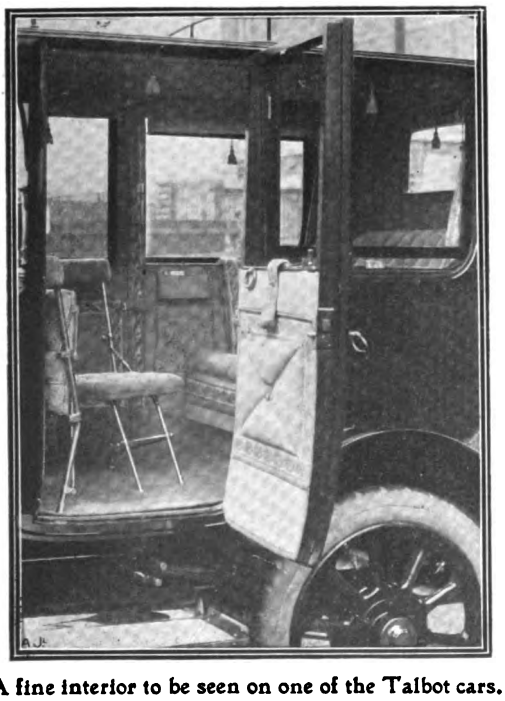
shoes are therefore needed in this instance. Another very fine steering-joint I noticed on the Nazzaro cars.

Before I conclude my notes on the chassis proper, I will—as I have done before—pass a remark on the few tool kits I saw at the Show. As I had expected, on most of the stands they did not have one, but offered me a list of the tools. One maker was candid enough to tell me that he did not provide any tools with his cars, while another informed me that he had not yet been able to select a suitable kit. Two kits that I saw, the Berliet and the Enfield, are really good. In these cases, however, the tyre pumps, small plain, single-barrel types, to my mind were quite inadequate to the demand of the 880 by 120 mm. tyres which the cars carried.

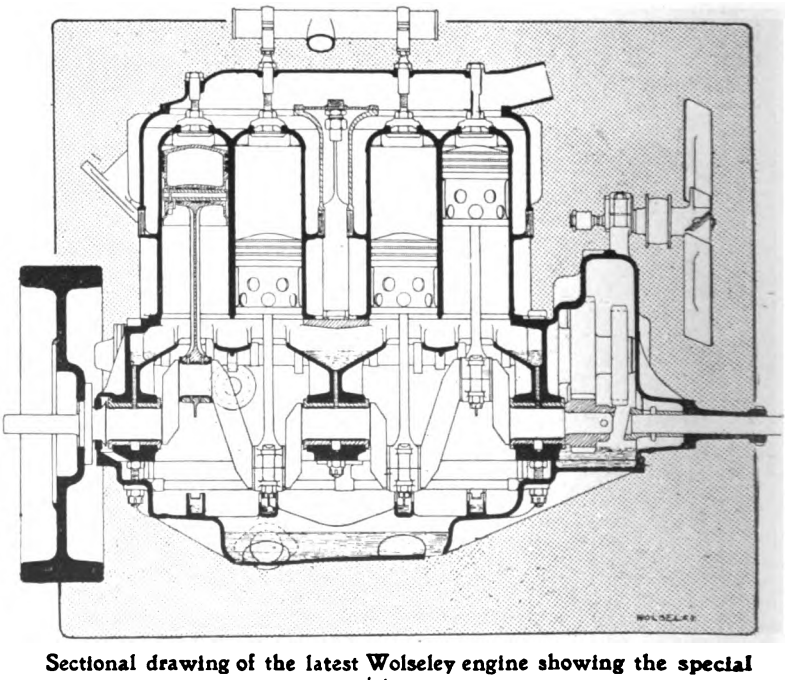
Now I come to a subject to which I have been looking forward with the keenest interest and in which, I have to admit, I suffered some considerable disappointment at the Show, that is, self-starters. It appears to me that manufacturers have realised the importance of this matter too late for exhaustive experiments to be carried out in time for the Show, with the result that we find that those makers who do bring out a new thing in this line only fit it as an extra, and not as a standard. To my mind this is a sign that they are not yet quite so sure of the affair as they would like to be, and want to know how it proves in the hand of the average driver, where things often turn out to be very different from what they seemed on the test-bench or in the hands of the specialist at the works.

Besides the American cars, Cadillac, White, and Studebaker, which are equipped with electric self-starters, there are only three European firms who send out their chassis with a self-starter as standard equipment. Two of these are English, the Wolseley and the Adams, and the third, the Italian S.C.A.T., has a self-starter which is the invention of an Englishman, Mr. Harper, of Messrs. Newton and Bennett, Manchester. In the case of the Wolseley cars, the self-starter is a standard fitting only in the six-cyl. model, but not in the four-cyl., the latter chassis, however, I noticed is designed so that it can be easily fitted.

Dealing with the various kinds of self-starters as shown at Olympia, it appears to me that there will be a keen competition between the compressed-air type of starter and the electric dynamotor. From the impression I gained at the Show, I have to admit that it seems, at present at least, that the dynamotor is making a bold bid for public favour, chiefly, I believe, on account of its undoubted success on the Cadillac car. Whatever may be said for or against the electrical self-starter, it is, to my mind, a very big feather in its cap, and in the cap of the Cadillac as well, that such a firm as the Lanchester Co. offer to equip their cars with the Delco system, as used in the Cadillac. I confess that I place considerable confidence in Lanchester work, and I am not the only one who does.

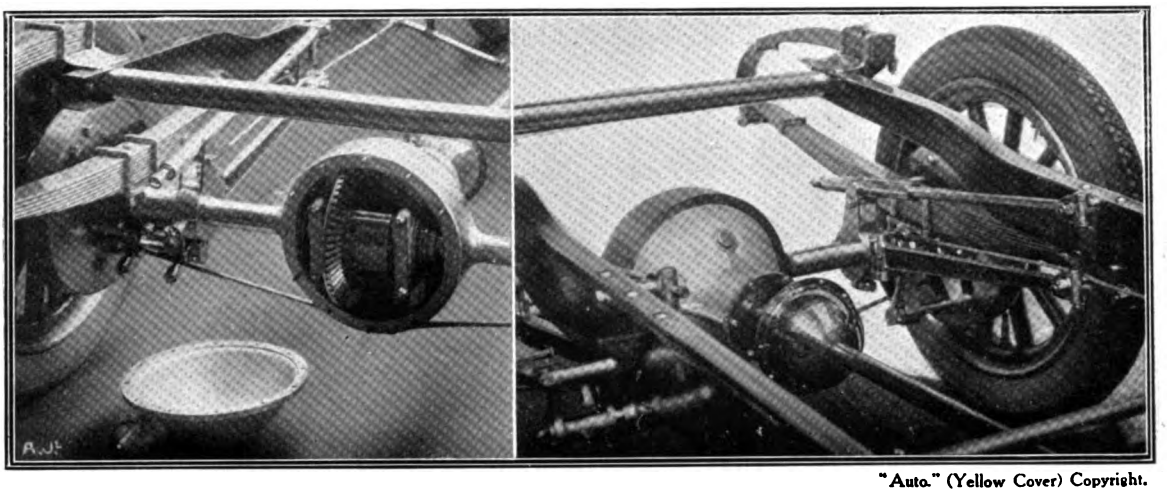


A fine interior to be seen on one of the Talbot cars.



Sectional drawing of the latest Wolseley engine showing the special pistons.

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"Auto." (Yellow Cover) Copyright.

The very original Maudslay back axle, which is made from a solid forging bored out to form tubular casings over the live shafts.

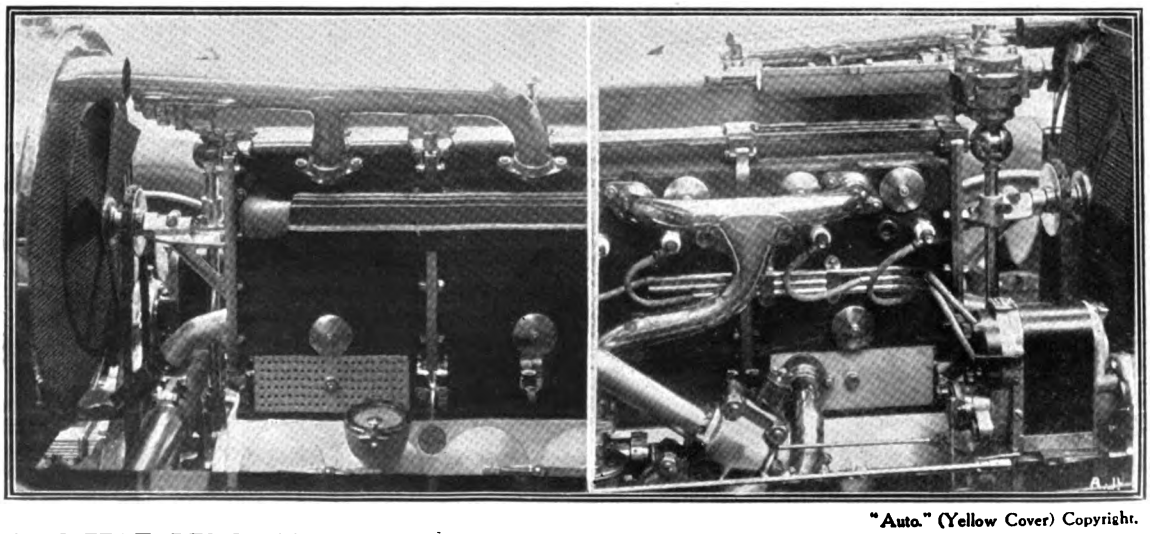
In the Scott-Crossley electrical self-starter, which was shown on the Crossley stand, and which has attracted a considerable amount of attention, we have an electric self-starting system designed and made in this country, which, to my mind, need not take a back-seat behind any of the American devices of a similar nature. Indeed —taking it for granted that, as a dynamo and as a motor, both the American and the British devices are equally good—the latter, to my mind, scores on account of its superior accessibility and method of mounting, which eliminates a number of operating-rods, which are quite a feature—and not the best—of the best-known American apparatus of this kind. The Scott-Crossley, too, is, as far as I am aware, the only electrical self-starter designed with a safeguard against damage from an accidental backfire.

All this is enough to make me sit down of an evening and read up books on dynamos and electric motors of which I do not know as much as I ought to or should like to know.

In view of the coming increase in the electric equipment of motor cars I see a good chance for clubs, and chauffeurs' organisations in particular, to increase their usefulness, and incidentally, their membership by organising popular lectures on the subject. We all have a fair grounding of the principles that govern the generation of electricity by dynamo and its re-conversion into power by the use of the same machine as a motor. A man who knows how to make these matters clear, in popular, and as far as possible, untechnical language, should find a good field for his lectures.

In addition to the electrical self-starter, there were two other kinds to be seen at Olympia, viz., the compressed-air type on the Wolseleys, Sunbeams, Adams, S.C.A.T. and Delaunay-Bellevilles, and the spring-motor type on the Star and Adler. Two more types of motor-starters were represented at the Show, one a mechanical-starter on the La Buire, where the driver starts the engine from his seat by pulling the engine over the compression by means of a side lever, and the acetylene-starter, which, although not fitted to any car, was shown by the Acetylene Illuminating Co. on their stand in the gallery. Although much can be said for and against these two types, I shall have to leave them out, if only for the time being, but I thought I ought to mention them for the sake of completeness of my notes on the Show generally and its novelties in particular.

Before going into the details of the compressed-air

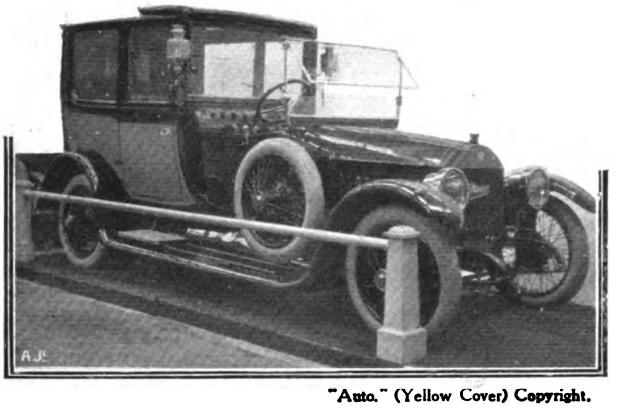


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ORIGINAL FEATURES ON THE MAUDSLAY ENGINE.—On the left the perforated inlet pipe to the carburettor; on the right the vertical shaft for driving the overhead valve-gear.

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starter, I will deal with the spring-motor, or "clockwork-starter." The word clockwork should not be taken to indicate the unfailing reliability of the device, it merely shows the principle upon which it is designed. In it a spiral spring, which is wound up by the motor, is used to rotate the crank-shaft for starting purposes. I was told, but I can hardly believe it, that if the spring has exhausted itself without starting the engine, all the driver could do is to wind it up again by means of the starting handle. The principal objection I have against it is its ugliness, it is not only unsightly in itself but to my mind it by no



"Auto." (Yellow Cover) Copyright.

A Sava limousine.

means improves the appearance of the cars to which it was fitted. It may be quite a good engine starter, because the makers of both Star and Adler cars would never fit anything to their cars that does not come up to the high reputation of their vehicles, but it certainly is no gain from the point of view of appearance.

There only remains the compressed-air type of self-starter to be considered and I am dealing with it last because I confess that my personal inclination draws me to this type more than to any other. And I will tell you why! Because with the compressed air I, as a chauffeur, get something "thrown in" that I value very much indeed. While an electric self-starter gives me electric lighting as an additional advantage, the compressed-air starter blows up my tyres and lifts the axles of my car, and if I take it that both types are equally good as engine starters the "throw in" of the compressed-air type is more valuable to me than that of the electric affair. This is not all. The compressed-air type does not involve principles of which chauffeurs in general know but little; it is purely mechanical, and if it should go wrong the idea of roadside repair seems simpler than it does with the electric system. Even if I cannot repair it, I am not very much the worse for it after all, because I may still be able to start my car by the handle, and for the rest my car is just the same. But I may find myself very much in the dark one of these days—or, more likely, nights—when the whole of the electrical equipment goes wrong, if only temporarily. These are only some of the reasons which for the present moment at least make me for one prefer the compressed-air starters; they should not, however, be taken to detract one iota from the undoubted merits of the electrical apparatus.

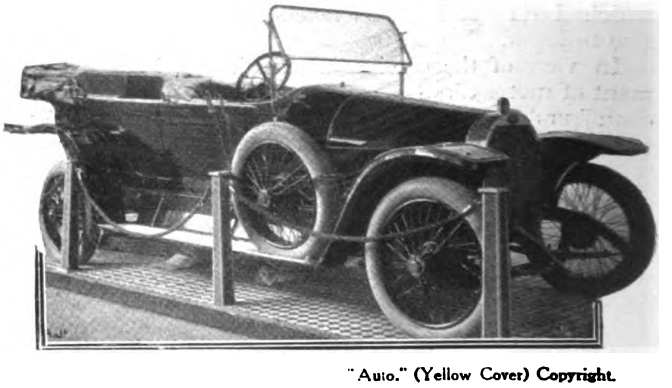
Of the various compressed-air starters shown at Olympia, the Adams and S.C.A.T. have the advantage of being well tried articles, a fact which is emphasised by their makers fitting them as standard to every car they send out. Unfortunately, I have no practical experience with either of them, but I hear from various friends of mine who have driven these cars for a number of years that they are nothing short of a blessing for the chauffeur. From the point of view of design and construction, I honestly believe that, with due recognition of the merits of all the other compressed-air starters, the Wolseley starter wants a great deal of beating. As we are promised a special article on this particular starter, I can confine myself to saying here that it is ingeniously thought out, is beautifully made (like everything else in the Wolseley works), and it is very accessible. It appealed to me very much indeed.

Another novelty amongst the compressed-air starters which much interested me was the Sunbeam, whose designer seems to have taken a leaf out of the electrical starter's book, at least as far as the mode of application is concerned. In this case the compressed air is not permitted to act on the crank-shaft through the pistons and connecting-rods, but a separate little compressed-air motor is mounted alongside the engine and, by means of an interposed reducing-gear, can be made to engage with a tooth-ring on the fly-wheel, and thus rotate the crank-shaft.

All these methods of application have advantages—and drawbacks—of their own, but while we very quickly discern the former, it is only long and continued use in everyday practice that can bring the latter to the surface and give the designer a chance to finally overcome them. As I have said before, I am quite prepared to accept for the time being some self-starter that wants attention, as long as it works reasonably well to repay me for the work I put into it.

The more I ponder over this subject of self-starters the more an idea persists in my mind which, to me, gives the whole matter a rather humorous aspect.

Imagine for a moment that the self-starters had been born together with the first practical motor car, and that in consequence every motor built had been equipped with a device of this kind as a matter of course.



"Auto." (Yellow Cover) Copyright.

The touring Opel.

Should we not all hail the man who, in view of such a state of affairs, invented the simple starting handle as a hero and genius of no mean importance? He would be acclaimed as the man who has made the first and most useful step in the real simplification of the automobile, he would lecture at the Institute of Automobile Engineers, receive the red ribbon of the Legion d'Honneur and the Order of the Red Eagle, if only of the third degree. But, surely, he would be the hero of the hour.

There is something to be said for the modest and simple starting handle after all. N.S.C. 16.

(To be continued.)

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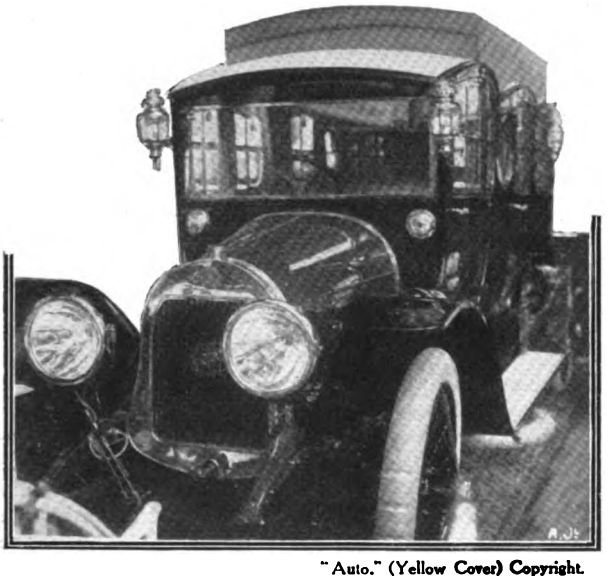
ODDS AND ENDS FROM MY NOTEBOOK AT OLYMPIA.

By X. Y. Z.

IN dealing with an exhibition it is usual, I believe, to begin by stating what the "general tendency" is in the progress of the particular branch of industry or art concerned as indicated by the exhibits, but, in looking back at the Olympia Show, I find it hard to mention any definite development which can be considered sufficiently characteristic for this purpose.

The expected boom in self-starters, which characterised the American shows last January, and which seemed imminent over here, has not reached us, a circumstance for which I think both the public and the manufacturers will be thankful presently, as it will give inventors time to evolve and manufacturers an opportunity to design and test sound appliances built on scientific lines. Thus the slump will be avoided which inevitably follows upon the boom of an article.

The cycle car, which promises to become an important factor in the row of power-driven vehicles, seems to have had its effect already on the trend of car engine capacity. For several years past the engine dimensions of the medium powered car have been decreasing, though the power given off has remained more or less the same. This year, however, one notices a tolerably general increase in engine volume, and this upward tendency may



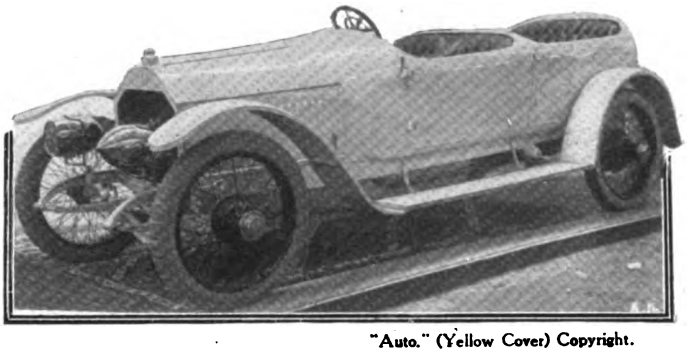
"Auto." (Yellow Cover) Copyright.

The Gregoire Cinderella coach.

be, partly at any rate, either one of the causes or the result of the favour accorded to the cycle car.

Of the few vehicles of this latter class which have been admitted to the Show, two noticeable examples were the Marlborough and Baby Peugeot cars. For the first, the Marlborough, I have little but praise; the reputation of its builder (Malicet and Blin), is sufficient to guarantee the quality of the material, and as for the design, it was there for everyone to see, and I do not think many holes could be picked in it. The only points which might be improved upon are the somewhat short springs, and the fact that only three speeds are provided; it is unfortunate that the small car, which requires a fourth speed more than its larger counterpart, should nearly always be the one to be without it—due to consideration of cost, of course.

The Baby Peugeot came as somewhat of a disappointment to me. Signor Bugatti who, I believe, is responsible for the design, has taught us to expect much from him, but he does not seem to have done himself justice in this little car. To mention one point, the valves are obstructed on the outlet side by the exhaust manifold and on the inlet side by the carburettor piping and magneto, also the valve covers are not readily detachable. But



"Auto." (Yellow Cover) Copyright.

A sporting Berliet designed by Mr. Max Graddon.

perhaps I am prejudiced, for, standing as I do, some 5 ft. 3 ins. in my stockings, I naturally regard a 9 ft. wheelbase with greater favour than one only 6 ft. in length.

The degree of standardisation to which the motor car has attained in its general lines, has given the designer a chance of devoting his attention to detail improvements, but, unfortunately, not always with success, owing to his not having "gone the whole hog." Take the engine lubrication systems for instance, either forced or a perfected form of splash has now been adopted almost universally, but the cases in which the oil-pump and filter can be removed for cleaning without first emptying the oil from the base-chamber are few and far between; that some of the manufacturers concerned are conscious of these defects is shown by the fact that they have gone to the extent of inventing excuses for them, and on several stands I was accordingly told that the arrangement was intentional, so as to oblige the driver to renew the oil in the sump periodically. Another instance of this sort of thing is afforded by the exhaust piping; in many cases the collector is cast in one with the cylinders, or else consists of a neat casting bolted to the latter. In several instances, however, the pipe leading to the silencer contains an entirely unnecessary number of right angle bends, while on one car the designer had actually gone so far as to make the collector T shaped, so as to obtain symmetry with the inlet manifold!

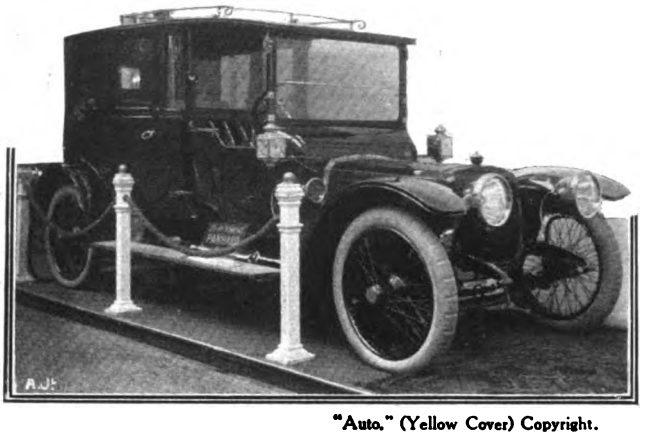
Of the same nature are those improvements, the adoption of which results in the sacrifice of some existing advantage. Surely Mr. Coatalen might have found some other location for his self-starter than by the side of the engine, whereby the really splendid accessibility of the valves of the Sunbeam is greatly marred.

Designers are beginning to realise at last that it is wise to make provision for the fitting and actuation of accessories which the public consider essential to their comfort. Quite a number of cars are now provided with dynamo-brackets, but the most workmanlike provision for this instrument was to be found on the Panhard, Piccard-Pictet, and Argyll cars, where it is intended to be located

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over the fly-wheel, the drive taking the form of gears, belt, or silent chain.

With regard to the speedometer-drive, also, it has always been a mystery to me why designers of cars have treated this fitting so cavalierly. During all the years that this instrument has enjoyed a popularity equalled by

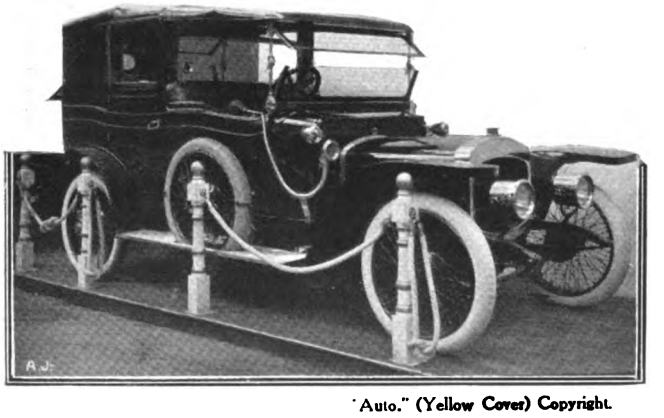


"Auto." (Yellow Cover) Copyright.

The Panhard landaulet.

no other voluntary accessory, the drive has been left exposed to the deteriorating effects of wet and grit. Now the tendency seems to be to transfer it to the transmission, where several makers already fit belt-pulleys as standard. I am sorry to see the more accurate front-wheel drive go, as with a little ingenuity it might easily have been enclosed and made dust and waterproof; but as quite a number of cars nowadays have hubs, the shell of which comes up so close to the steering-heads that there is no room for a gear-drive of any sort, the opportunity for this seems to have passed by.

The waterproofing of the various parts of the car is progressing slowly but surely; an ingenious instance of this is to be found on the Wolseley car, where the steering-arm coupling-rod is connected to the steering-



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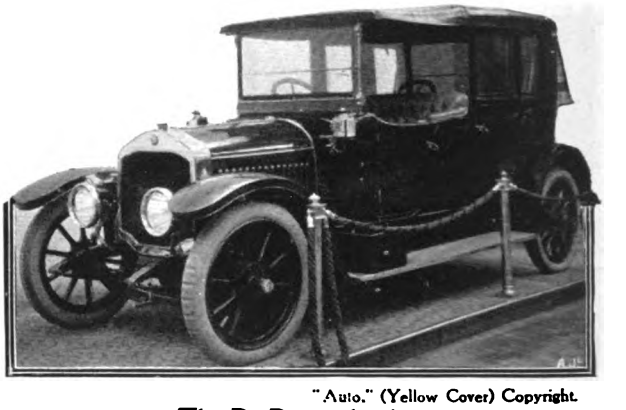
A Thornycroft cabriolet.

arms by means of caps and brass bushes. I hope Mr. Remington will continue this good work, and find a similar solution for the ends of the steering-gear connecting-rod, which will eliminate the leather gaiter makeshift from the front part of the car at any rate.

The popular demand for a scuttle-dash has enabled manufacturers to adopt gravity feed again, resulting in a considerable reduction in the number of unions and length of piping employed; a disadvantage of a tank in this location is the fact that it renders that part of the dash which is available for the various instruments rather dark, and not too easily accessible, unless, of course, a false dash be fitted to the face of the tank.

The use of leather as a flexible coupling is becoming more general. The makers of the Isotta-Fraschini, who, if memory serves me well, originated this plan, employ it for the joint between the gear-box and the propeller-shaft, while in the Unic car a double joint of this description connects the clutch with the gear-box. There are several examples of its use for magneto-drives, and in the Fafnir car the connection between the crank-shaft and the driving wheel of the camshaft-chain consists of a leather disc, the object being to prevent any periodic vibrations which may be set up in the crankshaft, from being transmitted to the valves.

I am rather surprised that the ingenious method of placing the water circulating pump inside the jacket of the first cylinder, as is done on the Albion and Spa cars, has not been copied by other makers; the "countresunk" carburettor, originated by the Fiat Co., and cast-in exhaust collector has found favour with many designers, and all of these methods reduce the number of pipes and



"Auto." (Yellow Cover) Copyright.

The De Dion cabriolet.

joints required, and so tend towards neatness of design and absence of leakage.

On the Withers car the accelerator pedal has a counter-weight instead of a spring to operate it, but I imagine that this will cause the pedal to bounce when traversing rough roads. The other day I was examining a church organ which was being repaired and noticed one of the pedals which was of the tilting type, being hinged in the middle; it occurred to me what an excellent throttle control this form of pedal would make, as the foot would at all times be fully supported and much less fatigue would be felt as the result of a long day's run. I wonder why it has never been employed for this purpose.

In the Chenard car the forward end of the torque tube which surrounds the propeller-shaft, passes through a thick rubber ring embedded in a cross-member of the frame; this is a simple, yet probably efficient, way of eliminating springs and hinges in this place. Single caps are used for the two valves in each cylinder as is also the case on one of the Panhard models; on the six-cyl. Delage which, I believe, was the first to be fitted with this arrangement, they have, however, been abandoned this year; it would seem hard to get in valves of sufficient size with caps of this sort.

I don't think I had seen a wick lubricator on a motor car since the days of the old Benz "gas engine on

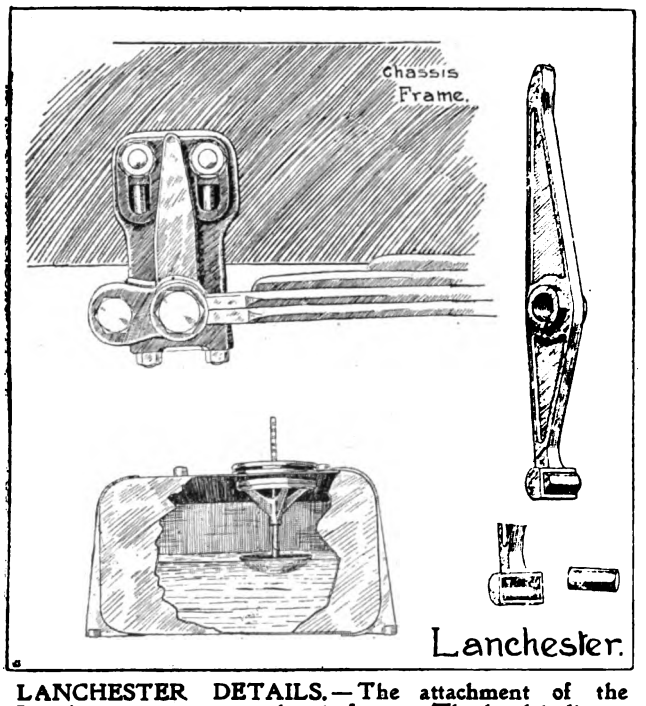
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wheels," but I found one on the Phœnix, its duty being to oil the forward universal-joint, as it is both an easier, as well as a cleaner, job to fill up with oil than with grease, there should be less excuse for neglecting this unfortunate joint.

I wonder why people will persist in trying to find impossible places for the fittings of a car. On two cars I saw electric side lamps placed on the forward ends of the mud-guards, where they not only get thoroughly drenched every time the car is washed, but experience the maximum possible amount of vibration, which is not exactly the best way to promote the life of the filaments.

In the Gallery are usually to be found a host of innovations, some useful, some ornamental, and some neither the one nor the other, but, for once, this part of the building seemed to hold out no startling novelties for the benefit of the searcher after such things.

The D.W.F. ball-testing machines made a most interesting exhibit, and must have impressed the non-technical motorist with the extraordinary care with which ball-bearings are manufactured. I was greatly pleased with the Fallot incandescent acetylene lamp in which the Bunsen burner is horizontal and passes through the centre of the Mangin mirror; the flame impinges upon a pastille of rare earths, supported at the end of a wire, and the whole can be focussed at will; there seems to be no danger of the lens cracking, as the flame is directed away from the glass. From the difficulties that have been experienced with incandescent mantles when using acetylene gas, owing to the deteriorating effect of the phosphorus compounds contained in the latter, I should

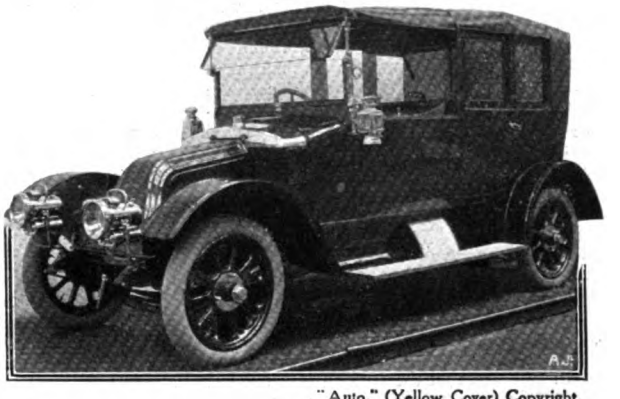


LANCHESTER DETAILS.—The attachment of the Lanchester springs to a chassis frame. The level indicator in the petrol tank and the Lanchester valve-rocker with detachable roller.

imagine that the best results would be obtained when using dissolved acetylene.

Of carburettors there was no lack, and among them the adjustable and easily removable jet of the Ideal was particularly ingenious. In the Zenith, the arrangement of the pilot-jet has again been altered; the spiral groove has been abolished and the straight tube, used formerly, has been reverted to, but instead of the lower end of this tube dipping direct into the fuel contained in the constant leakage well, it is enclosed inside a tube of larger diameter, closed at both ends but furnished with a very small fuel opening at its lower end and a similar one for air at its upper ends. This, therefore, constitutes a miniature reproduction of the constant-leak arrangement provided for the main part of the instrument, a case of "wells within wells," in fact.

On a stand of lamp makers I found a steering-wheel heating device, consisting of a small acetylene generator



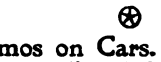
"Auto." (Yellow Cover) Copyright.

The Arrol-Johnston cabriolet.

supplying gas to a tiny burner inside the wheel! Fittings such as this belong to the same class of accessories as moving route maps, electric lubrication indicators, barometer and thermometer equipments, &c. The less said about them the better.

One can hardly ever take up a French motoring paper without finding a description of some ingenious novelty brought out by Messrs. Mestre and Blatge, and, in view of this fact, I was indeed disappointed not to find on their stand at Olympia these interesting things of which I had been reading.

Last, but not least, I must mention the Bosch stand, not because of the magnetos ("Everybody's using them"), but on account of the neatest baby mechanical lubricator which it has been my good fortune ever to come across. It works on exactly the same principle as the large models and is intended for use on motor cycles. When once adjusted it will supply the various parts with oil without any further attention; the small model contains six separate pump elements.



Dynamos on Cars.

IN our list of dynamos on cars last week, the Argyll was omitted by accident, and the omission was the more to be regretted since, as a matter of fact, the Argyll Co. has a particularly interesting and well-thought-out arrangement whereby their C.A.V. dynamo is supported on a special bracket over the fly-wheel. The dynamo is driven by a belt engaging in a groove formed in the casing of the disc-clutch, which thus serves as a pulley. The arrangement is extremely neat, and what is far more to the point is the fact that the dynamo does not interfere with the accessibility of the valves or other parts of the engine, as it is apt to do when placed alongside the cylinders. As these fittings had already been incorporated in the Argyll chassis design so long ago as the last Olympia Show, it would have been more appropriate to refer to the car in special type rather than leave it out of the list altogether.

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SOME MORE ACCESSORIES AT OLYMPIA.

ON Stand 218, Messrs. Willocq - Bottin Motor Lamp Co. showed a lamp and bracket, which, although all credit is due to this firm for bringing them out now, really appear to be so simple that they should have appeared many years ago. For the past decade and longer, the standard practice has been to have a forked bracket, the prongs of which engage with sockets protruding from the sides of the lamp. Both brackets and sockets were unsightly, the former made it hard to clean and start the car, and the latter added to the difficulty of keeping the lamps clean. Now we find that the problem of mounting lamps could easily have been solved by having a stub mounted on to the bottom of the lamp itself, which would drop into a round or squared socket on the end of a single arm, in precisely the same way that the old carriage lamps were fixed. The sketch on the accompanying page gives an idea of the improved appearance of this method of mounting, and the one objection that the lamps might skew round under vibration could surely be overcome, if a squared socket were not desirable, by the use of a spring washer and a nut which could be threaded on the lower end of the stub. The particular lamp shown is fitted for an electric bulb, but the design seems equally good for acetylene lighting, for then the inlet pipe for the gas might well be carried up the centre of the protruding bracket. It should be noted that the stub on the lamp is an extension of a curved member riveted to the inside of the lamp body.

Nuts that do not require much force to turn them are frequently made of such soft metal that even the moderate effort expended is sufficient to burr the edges, and make it difficult for the ordinary spanner to deal with them effectively. A new tool has been brought out to deal with nuts of this class, and was to be seen at Messrs. Melhuish's, Stand 286. The accompanying illustration shows its action better than can be conveyed by words. Briefly, instead of gripping only two sides of a hexagon nut, this spanner has an effective purchase on five out of the six. It is better than a box spanner in that it can be applied to any nut that an ordinary spanner will deal with, although, of course, it cannot be used instead of a box spanner for nuts in recesses and the like.

Did you see the Scrutiny Lamp on the Motor Accessories Co.'s Stand 240? It is primarily an electric side lamp, of quite orthodox appearance, but if you take the trouble to handle it you will find that it can be turned so that it points to almost any part of the car or its surroundings. It is interesting to experiment as to the number of places the light may be directed on to. It may be used to illuminate the back tyres one moment, and at the next it may be curled around so that the beam of light passes along and lights up the dashboard instruments. It can be used for reading signposts and for lighting up the tank filler when petrol is being poured into a tank under the driver's seat. All this is made possible by allowing the bracket to rotate in its socket on the dash, and the lamp to do likewise on the top of the bracket. Spring contacts are used to pass the current from one member to another, thus avoiding the danger of wires getting twisted up, in fact, the lamp itself may be lifted right off the bracket to facilitate cleaning. A spring-loaded ball dropping into one of a number of depressions in the rotating member makes the lamp stay where it is put.

The Birkight mechanical tyre pump, which is fitted to Hispano-Suiza cars as a standard device, was exhibited on Messrs. Lacoste's Stand 205. This pump, as can be gathered from the sketches, is designed to mesh with one of the constant wheels in the gear-box, it being easy to put it in or out of gear by sliding the gear-wheel along its squared shaft by means of the cam provided. Although pure cold air is drawn in at every stroke, the pump works at such a speed that it would be liable to heat up were radiating fins not provided. The air given off can be put to a variety of uses, such as blowing up tyres, cleaning out acetylene pipes, or providing pressure for a self-starter.

On the Klaxon Stand 279, amongst a display of useful accessories was found the Ronson "Pisto-Lighter," illustrated on the accompanying full page. This device consists of a file-like member, which, when drawn up the barrel of the "pistol," and released by means of the rear trigger, is pressed outwards suddenly by a strong spring, and by rubbing roughly on a flinty substance contained in the cap shown where the front sight ought to be, will produce a constellation of sparks sufficient to light any acetylene lamp in the wildest wind. The point that should appeal to the buyer is that fresh refills of the flint can be so easily put in by simply taking off the cap and placing them under the spring provided.

While speaking of Klaxons, it may be interesting to note that this instrument has been adopted as the standard warning signal on the 30-h.p. Lancia car for the coming season.

As we have before stated, the proper action of a shock absorber is to allow the springs to be compressed with little if any resistance, but to check the subsequent rebound, while at the same time allowing them to expand sufficiently quickly to be ready for the next shock. Incidentally, the *ideal* absorber should allow for a quick expansion of the springs when the road wheels drop into a rut, and provide a braking effect on the subsequent *compression*.

The United Motor Industries Spring Controller, which could be seen on their Stand 251, consists of a metal rim surrounding a centre formed of a disc attached to the side member of the frame, on which plate are mounted three crescent-shaped metal plates, bearing leather linings on their outer edges. These plates are held outwards by three arms mounted eccentrically around the centre. Owing to the eccentricity of these arms, a movement in one direction tends to lessen their pressure on the outer plates, while the reverse movement causes them to push these plates outwards with great force. It should be noted that both arms and plates are allowed a rotary movement in harmony with the outer rim of only a few degrees. A quantity of grease can be packed into the instrument, so that lubrication does not need frequent attention.

On the Coventry Motor Fittings Stand 211 were exhibited a number of well-known radiators, and others that deserve to be equally popular. The one illustrated, which is named "The Taunton," has a very pleasing appearance, and owing to its pointed shape, presents a greater area for a given width.

Why a warning signal should be heavy and complicated is difficult to understand. The feature of the "Stentophone" signal, illustrated by Sketch 1, is its simplicity. It consists merely of a whistle, hinged on to a flange for connecting it to the exhaust pipe, and operated by a wire arranged to be pulled from some convenient point near the driver's seat, by pedal or otherwise. Numerous sizes are stocked in order to fit almost any standard exhaust pipe. It should be noted that there is absolutely no obstruction when the whistle is out of action. Wire is used for lifting the whistle, as any other substance would quickly be burnt away by the exhaust gases. These whistles, in various sizes and finishes, were to be seen on Messrs. Mestre and Blatge's Stand 231.

Amongst the electric lighting sets almost all are fitted with that most necessary device which gives warning when the tail-lamp or its circuit fails. There are many motorists, however, who use batteries for lighting side and tail lamps, who have no regular dashboard array of switches. To these the new "Tail-lamp Indicator," Sketch 2, which is sold and was exhibited at the Show by the Motor Accessories Co., on Stand 240, should greatly appeal. Its principle of action is as follows:—To fit it, all that has to be done is to screw it on to the dashboard, cut one lead of the tail-lamp circuit, and attach the two loose ends to the terminals shown at the bottom of the box.

When the tail lamp is switched on, the current passes through the winding of a coil in the box, which energises an electro-magnet. The latter draws to it an armature, thus breaking the circuit of the lamp shown at the side of the box. Now so long as the ordinary amount of current is passing through the tail-lamp circuit the magnet holds apart the contacts of the dash lamp, but if the filament breaks or the wires "short" the dash-lamp lights up and gives warning. A fuse is fitted to cause the circuit to break if a "short" takes place. Where this particular device scores over the usual indicator, is that the warning light is lit from a separate battery, so that even if the battery supplying current to the tail-lamps fails, warning is still given. The press button in the centre lights up the dash-lamp for reading instruments when required. The tumbler switch on top is to break the indicator lamp circuit when the tail-lamp is out of use in the day-time.

Sketch 3 illustrates a "Handy Punching Bear," which was found on Messrs. Berliet's stand in the gallery, 303. It is well made, simple, and for its power, light. Samples of iron and steel plate that have been punched with it were exhibited on the stand. There are numerous uses in the garage for a small tool of this sort.

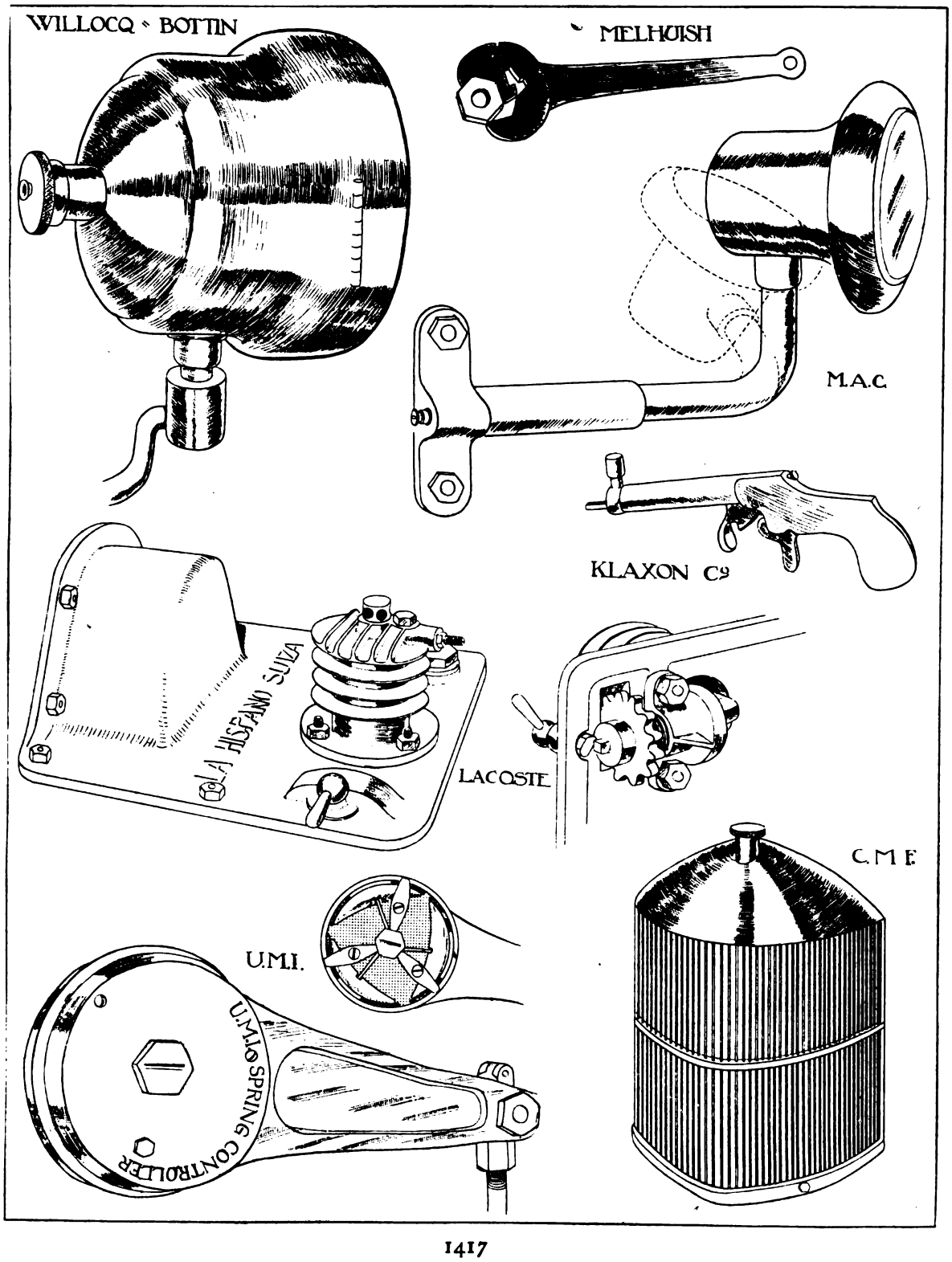
Messrs. R. Melhuish, Ltd., on Stand 286, showed, amongst many accurate measuring devices, Spinney's Rapid Viewer. This is an instrument by means of which the measurement of the thickness of any material may be quickly gauged, even by a novice. There are no vernier or multiplying lever devices and no fine threaded screws. The illustration shows the instrument with a thickness gauge under the plunger, but soft materials such as paper or cloth may be measured, as a shoe is provided for fitting on the bottom of the plunger, thus providing two flat surfaces between which the material may rest. The actual recording needle is in reality a fine wire. This is placed pretty close to the scale, but in order to prevent inaccuracies a neat device is used. Adjacent to the scale and flush with it is a plate-glass mirror, and, to insure a correct reading, the instrument should be looked at so that the reflection of the wire in the mirror is hidden by the wire itself. Rapid adjustments are provided at all parts, and articles up to 4 ins. in thickness can be measured.

In these days when the price of petrol is soaring to 2*s*. a gallon every ounce is worth saving where possible, especially if several cars are running from the same garage. In the Bowser petrol storage and delivery device

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we have something especially designed to deliver, by a pump, any specified quantity of petrol at any convenient part of the garage. The storage tank itself may be placed anywhere, preferably underground, and connected by tubing to the pump. This latter is a cylinder, in which moves a piston operated by a rack and pinion gear mounted on the outside of the cylinder. The movement of the piston may be watched through a series of glass-covered holes in the cylinder wall. In its ordinary position the piston is down as illustrated. On revolving the handle at the side the piston is drawn up the cylinder, sucking with it petrol from the storage tank, past a non-return valve. Naturally the higher the piston is drawn up the more petrol will it deliver on the down stroke, so the windows in the cylinder wall are utilised to measure off certain lengths of stroke and certain quantities of petrol. Thus there are the gallon mark, half gallon, quart and pint.

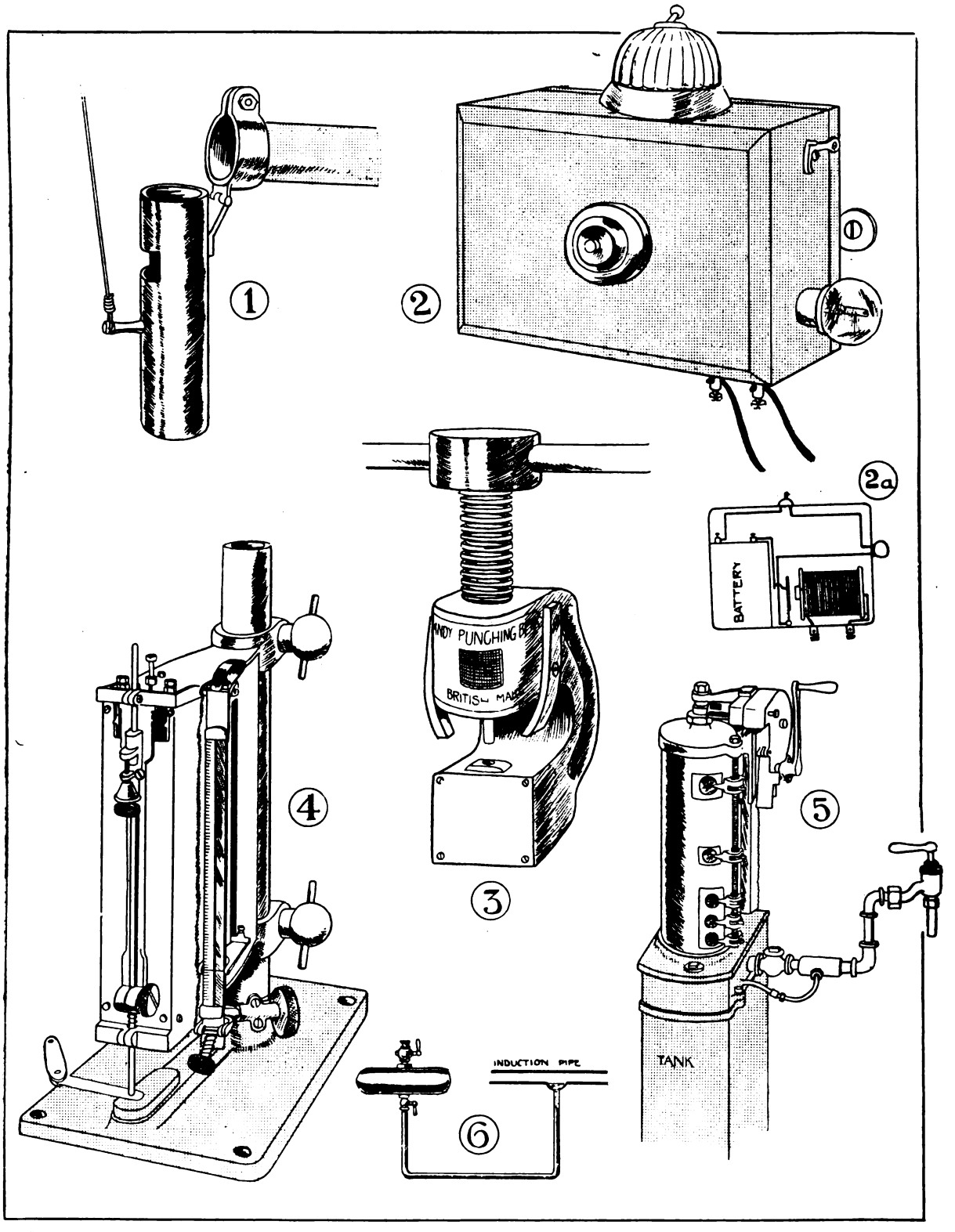
Each of these marks has an adjustment to deal with any slight inaccuracies that may arise. On turning on the tap over the spout and revolving the handle in the opposite direction, the petrol is forced out quickly; in fact, two gallons can be delivered in less time than it takes to empty a two gallon tin. A locking device for the handle is provided, and it should be noted that the pump can be used just as well for lubricating oil of any reasonable viscosity. The pump was to



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be seen on Messrs. S. Bowley and Son's Stand 213.

The "Well" Self-starter, as it is called, is a neat little device shown on the Motor Accessories Co.'s Stand 240, for priming an engine without going around with a squirt can to every cylinder. Under the bonnet is fixed a small auxiliary petrol tank, and in the induction pipe, at some horizontal portion, is fixed a little well or spoon-shaped depression. By allowing a little petrol from the tank to flow through the connecting tube and settle in the well, one makes sure that a sufficiently rich mixture will reach the cylinders for starting.



1. The Stentophone horn or whistle, sold by Mestre and Blatge. 2. The new tail-lamp indicator of the Motor Accessories Co. 2a. Purely diagrammatic sketch of the wiring of the tail-lamp indicator. 3. Berliet Motors, Ltd., handy punch. 4. Melhuish's new measuring device—Spinney's rapid viewer. 5. Bowser's petrol storage pump. 6. The "Well" starter, sold by the Motor Accessories Co.

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THE 27-80-H.P. ISOTTA FRASCHINI.

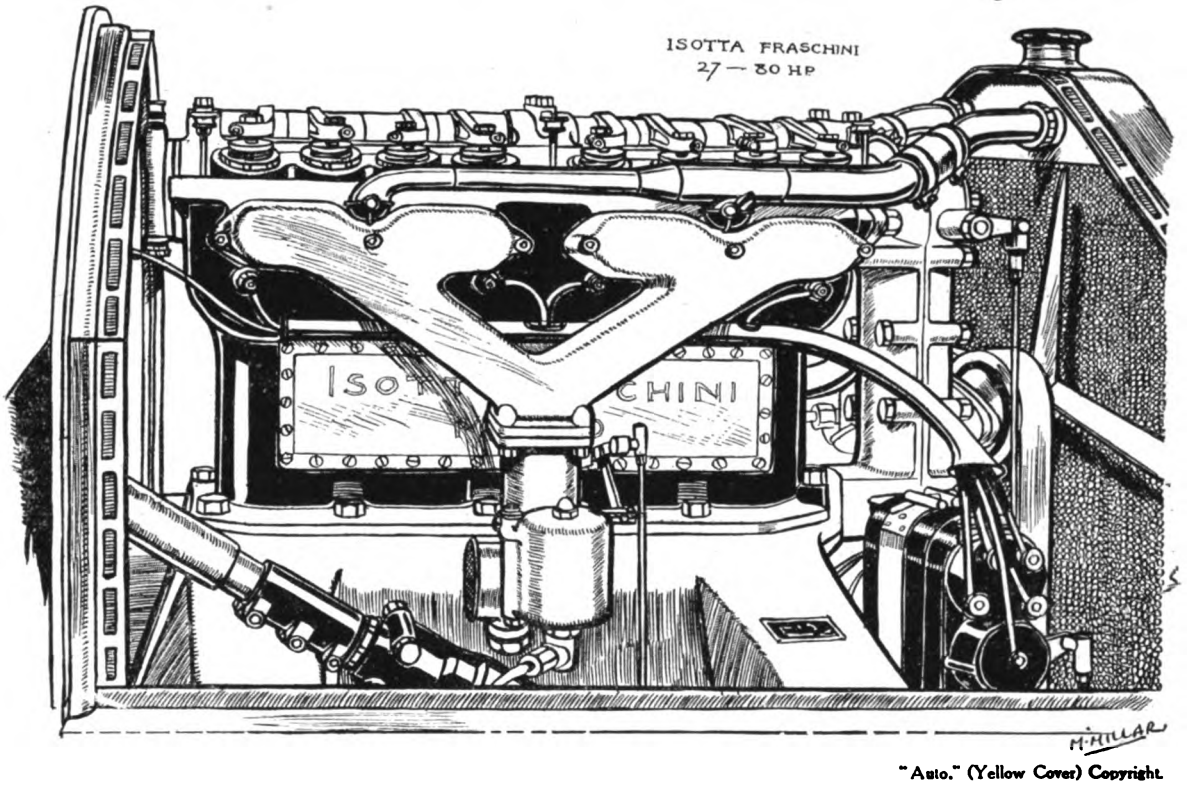
WITH the exhibit of the Motor Manufacturing Co. and Alfred Burgess, Ltd., it was a case of "a fine car on a bad stand." Tucked away in an obscure corner somewhere under the gallery of Olympia were two Isotta Fraschini chassis, the larger of which to the writer's mind was quite one of the finest pieces of engineering work to be seen at the Show. Its towering engine is one of the few examples which demonstrate the influence of racing on the design of touring cars. Here, it may be said, that the racing practice of yesterday is touring car design of to-day, for in its general design, and in its outline, if not in actual internal dimensions, this engine is not unlike the motor used in one of the most successful cars that ran in the last Grand Prix Race at Dieppe.

The four cylinders are cast in a monobloc and have a diameter of 105 mm., while the stroke of the piston is 180 mm. According to the R.A.C. formula, which does not take the stroke into consideration, this engine should develop 27·3 h.p., but we have good reason to believe that the actual power-output at normal revolutions is nearly twice this figure, while the motor, although a heavy type of engine, can be accelerated so as to give off 80 h.p. without in any way overtaxing it. This explains the somewhat unusual rating of the makers as 27–80 h.p.

As to the design itself, our sketch shows all the most interesting features, but it should be remembered that the overhead valve-gear is protected and rendered oil-tight by an aluminium cover, which has been removed for purposes of showing the mechanism. There are two inlet and two exhaust-valves to each cylinder, set at an angle in the roof of the combustion-chamber. They are actuated by an overhead cam-shaft, through tappets in the form of bell crank-levers. A separate tappet is provided for each valve, and an adjustment is fitted for setting the clearance between rocker and valve-stem. The cam-shaft is driven from the crank-shaft through a vertical spindle carrying enclosed bevel-gearing on either end.

By means of a lever in front of the radiator, the cam-shaft can be shifted into such a position that a set of auxiliary cams is brought into action to open the exhaust-valves during a part of the compression stroke, so as to release some of the compression and facilitate starting the engine. After removing the rocker-shaft, which is held in place by six conveniently situated bolts, the valves are readily removable, and can be screwed out of the cylinders together with their seatings.

Engine cooling is effected by forced water-circulation; there is a hot water outlet on either side of the cylinders, which makes for an efficient cooling of the valve-seats.



"Auto." (Yellow Cover) Copyright.

Freehand drawing of the 27-80-h.p. Isotta Fraschini engine sketched at the Olympia Show.—This remarkably fine engine is characterised by an overhead valve gear giving two inlet and two exhaust valves to each cylinder.

A Bosch magneto, of the waterproof type, provides current for the ignition, while a Zenith carburettor is responsible for the explosive mixture. As can be expected in an engine with so long a stroke, the firing point is variable. Lubrication is by forced feed to all engine bearings.

This remarkably fine and powerful engine is built into a substantial chassis in which the drive is through a multiple disc-clutch, four-speed gear-box, and a pair of side chains to the road wheels. The chains run in oil-retaining chain cases. We are informed that intending purchasers are given the choice between a chain-driven or a gear-driven chassis equipped with this engine, a fact that should do much towards attracting those motorists to this car, who have a prejudice against what they consider to be an old-fashioned type of transmission.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, W. M. LETTS, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.

Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. A. Holmes, deputy-chairman; Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee: Messrs. Moores, Adey, Tyler, Emmerson, Holland No. 2, Shaw Withill, Hardy.

The minutes of the previous meeting were read and confirmed.

Legal Department.

Application for legal aid was made by member No. 645, summoned for exceeding the speed limit at Cricklewood. The application was granted. The action of the secretary was endorsed for granting legal aid, under the power given him to act in cases of emergency, to member No. 649, summoned for driving on the wrong side of refuge on the Embankment.

Please Note.—Members are requested to be careful at the City end of the Embankment. To pass any vehicle on the near side, although there may be room on the tram lines, means a summons.

The London County Council's demand for £1 1*s* for licence was referred to the solicitor.

The secretary reported the result of inquiries in the case of a new member, mentioned in last week's notes. The secretary reported that the case was a most scandalous one, and needed careful handling in order to protect the new member. He, the secretary, had visited Esher and found the statement made by the member to be perfectly true. The summons was returnable for Thursday 21st.

The Chairman reviewed the work done at the Show. It had been more than encouraging to note the interest taken by all sections of the motor industry in the work of the Society. Friends from all over the kingdom had congratulated the committee on the work done during the past year. Many lapsed members had rejoined, and the applications for honorary membership had been numerous.

Mr. Darmaros, who had charge of the N.S.C. portion of the AUTO. stall had done wonderfully well. Many foreign chauffeurs had been delighted to find someone who could converse with them in their own language.

Mr. Pye moved and Mr. Shaw seconded that the best thanks of the committee on behalf of the members be tendered to Mr. S. Spooner for his kindness in alloting a portion of the AUTO. Stand for the use of the Society, and to the AUTO. staff for their courtesy, kindly interest, and assistance at the Show.—Carried unanimously.

Clubroom.

Owing to the large amount of business, the committee were unable to discuss the programme for December. The French classes will start at once, and work out at 6*d*. per lesson of two hours, to be held every Wednesday and Friday evening, 8.30–10.30. Full terms, &c., will be published next week. Meanwhile members should forward their names if they wish to join the classes.

Accepted for Membership.

Herbert G. Wheeler, Inverness	William E. Bancroft, Totteridge
Charles A. Smethers, Wimbledon	William J. Harris, London, S.W.
Arthur Caddy, Bristol	A. W. Knight, Kensington, S.W.
Henry C. King, Bow, E.	John A. Harrison, Sheffield
T. Lawrence, Belgravia, S.W.	James W. Tuck, Upton Park, E.
Tom D. Brook, Fulham, S.W.	Lawrence E. Cross, Oxford
Harry Bryant, Kensington, S.W.	E. F. Randall, Co. Cavan, Ireland
W. C. Rackliffe, Earl's Court, S.W.	Sidney Rumble, Paddington, W.
J. T. Newnham, Kilburn, N.W.	T. Lamborn, Whitchurch, Oxon
A. V. Powell, Shepherd's Bush, W.	D. Hall, Merton Abbey, S.W.
James T. Nash, Earl's Court, S.W.	Joseph Hands, Leicester
Arthur H. Durrans, Birmingham	Thomas A. Weston, Brighton
F. J. Plumstead, Earlsfield, S.W.	Charles T. Terry, Sunningdale
G. Giddins, Shepherd's Bush, W.	George Cowland, Reigate
John Cahill, Plymouth	F. C. Gildersleve, Wembley, Midd.
Arthur E. Mason, Bayswater, W.	John M. Jackson, Langholm
Reginald Fleet, Newbury	Richard A. Bean, Vauxhall, S.W.

Applications for Membership.

R. E. McDermott, Ennis, Co. Clare	R. A. Bridges, Shepherd's Bush, W.
Ernest E. Hale, Brighton	Charles Russell, Brighton
Joseph Magrath, Glasgow	George Lowings, Notting Hill, W.
Frederick Harris, Chertsey	Thomas Ryan, Staines
W. J. C. Clee, London, S.W.	Robert Mays, Chelsea, S.W.
Edwin T. Matthews, Nottingham	Harry Tulley, Lancaster Gate, W.
William A. Rich, Doncaster	George A. Leak, Bath
William Reed, Wimbledon	T. Morrill, Upper Norwood, S.W.
John E. Hudnott, Wimbledon	Alfred J. Whyborn, Bournemouth
R. J. Greenleaf, Victoria, S.W.	F. W. Tiedt, Tooting, S.W.
J. S. Stovell, Westminster, S.W.	William Chalmers, Dumfries
John L. Fisher, Hornsey Rise, N.	Frank Chapman, Stratford, E.
H. H. Fletcher, Earl's Court, S.W.	A. H. Wingrove, Chelsea, S.W.
Sidney Byatt, Belgravia, S.W.	W. F. French, Clapham, S.W.
William Parkinson, Pimlico, S.W.	T. H. Edwards, Earl's Court, S.W.
Ashton Stephenson, Leeds	R. C. Polkinghorne, Chester
H. J. Radford, Earl's Court, S.W.	James Hitchcock, Willesden Green
Alfred Valsler, Kensington, S.W.	Albert Austin, Bath
John G. Warlow, Swansea	W. H. Bolton, Bournemouth
Gilbert Grenn, London, S.E.	Charles Myers, Leeds
Alfred C. Weight, Charlton, S.E.	Sidney V. Lewis, Mortimer, Berks
A. Larrett, Shepherd's Bush, W.	William F. Marks, Willesden
Robert Robson, Highgate, N.	A. E. Searles, Lambeth, S.W.
Harding T. Brickett, Esher	George Goate, Wanstead
F. G. Payne, Camden Town	Ernest Wells, Hampstead, N.W.
Frederick Branson, Coventry	A. J. Cook, Shepherd's Bush, W.
A. Maillard, Battersea, S.W.	Albert Allen, Hampstead, N.W.
George A. Reid, Bayswater, W.	George W. Rudley, King's Lynn
H. G. Healey, Enfield, N.	Stuart H. King, Chippenham
Sam Smith, Sutton-in-Ashfield	Ernest F. Mathis, Worplesdon
G. H. Kemp, Amersham Common	William H. B. Dunn, Bristol
G. Greenfield, East Grinstead	William Staples, London, N.
E. H. Clayton, Hampstead, N.W.	Ralph J. Davison, Battersea, S.W.
Frank Croshier, Sevenoaks	Henry L. Wheeler, London, S.W.
W. J. Waller, Chelsea, S.W.	J. W. Robinson, Dunton Green
Alfred P. Blyth, Marylebone, W.	Richard G. Harris, Bristol
Frederick Kerr, Sunderland	James W. Harrison, Pimlico, S.W.
A. T. Spreadbrow, Chiswick, W.	

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

Review of Events.

Not the least pleasing event of the Motor Show was a visit rom the Nottingham and Notts Chauffeur Association. This Society has been formed on the same lines as the N.S.C., and there is a probability of affiliation between the two Societies. On Saturday Mr. Holland accompanied a deputation from the Notts Association to headquarters where the secretary made them the guests of the Society. A friendly chat over a cup of tea, regarding the merits of the two Societies, cemented a bond of brotherhood. After a few

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friendly games at billiards, Mr. Holland guided the brothers from Nottingham round the town and to St. Pancras.

The case mentioned in the notes is in regard to a young man induced to come to London with a promise of a decent berth, to find himself engaged with perhaps the type of owner usually designated a road-hogger. This "gentleman," when asked to produce his licence after driving in a manner dangerous to the public, used his chauffeur's licence, with the result that the newly-made member received the summons intended for his employer. The case will be reported next week when, after our member has been relieved from anxiety, we hope to assist in giving due reward to the person concerned.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed

Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.



"Auto." (Yellow Cover) Copyright.

The "Shell" trophy, which has been offered for competition amongst members of the National Society of Chauffeurs.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Special Road Warning.—The Thurgoland Parish Council have asked the Association to request motorists to exercise more care in passing through the village of Thurgoland. There are four cross roads in the centre of the village, also a school, and complaints of reckless driving of cars and motor cycles are very numerous.

Olympia Motor Cycle and Cycle Car Exhibition.—November 25th-30th.—By the courtesy of the Cycle and Motor Cycle Manufacturers and Traders Union, the Association has been granted space for a Stand (No. 204) at the Olympia Motor Cycle and Cycle Car Exhibition. A staff of officials will be in attendance on the Stand to explain the benefits of membership to motor cyclists and cycle car users, also to enrol new members.

Speed Limits.—Applications have been lodged for ten miles speed-limit orders by the Kesteven County Council (Lincs.), and the County Council of Hertford. The Kesteven application applies to the portion of the main road between Grantham-Lincoln-Sleaford, which runs through the village of Syston. The Hertfordshire application affects certain roads in Letchworth. The Association will oppose these applications, and the secretary hopes that members residing in these districts will send in information likely to be useful at the forthcoming inquiries. In addition to the foregoing applications, it may be mentioned that the London County Council have under consideration applications for similar restrictions at Rye Lane (Peckham), St. John's Road (Clapham and Battersea), Draycott Avenue (Chelsea), and Church Street (Kensington). An order will be granted in connection with the West Hill and Swain's Lane Highgate inquiry (at which the Association was represented), but this order will cover less than 50 per cent. of the distance originally scheduled.

Guide Cards Through Towns.—Another batch of cards showing the best routes through towns have just been issued. The complete set of cards now available for members upon application relate to the following towns:—Birmingham, Bournemouth, Bristol, Cambridge, Durham, Edinburgh, Exeter, Glasgow, Gloucester, Guildford, Leicester, Lincoln, Manchester, Northampton, Nottingham, Oxford, Shrewsbury, Worcester, Brighton, Burton-on-Trent, Canterbury, Carlisle, Chelmsford, Chester, Colchester, Coventry, Doncaster, Newcastle-on-Tyne, Preston, Reading, Stamford, Warwick and York. These cards also indicate the situation of A.A. and M.U. hotels and agents, congested routes which should be avoided, and the names of neighbouring towns and the distances thereto are clearly shown.

A Dangerous Bridge to be Sign-Posted by the Association.—Some time back, in response to requests made by members, the Association approached the Romsey Borough Council with the suggestion that cautionary signs be placed upon the approaches to Middlebridge, Romsey, as an alternative to applying for a regulation imposing a five miles speed-limit over the bridge, which is very dangerous and narrow, and has a steep rise on each side. Eventually the Borough Council approved this proposal, and instructions have now been given by the Association for the erection of the necessary signs.

A Level Crossing Danger Removed.—The Association has been successful in obtaining the removal of a very serious danger to motorists travelling at night. The danger-spot in question has existed at the Reigate Level Crossing, where the lights have been so arranged on the gates (which are not at right angles to the road) as to shine direct on the railway, but at an angle across the road. On a dark night, therefore, it was impossible for motorists to see the gates until they were almost in contact with them. Several accidents occurred through collisions with the crossing gates. The Association communicated with the Railway Company, with the gratifying result that a clear view of the lamps fixed to the gates is now obtained on both sides of the line from the centre of the highway, at a distance of 100 yards from the crossing.

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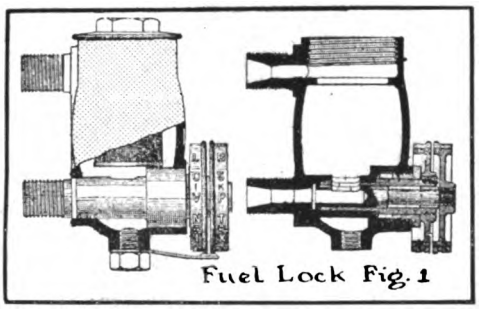
For Garages Open Sundays, see "Auto." Guide every week.

For all Cars and Addresses see Directory weekly.

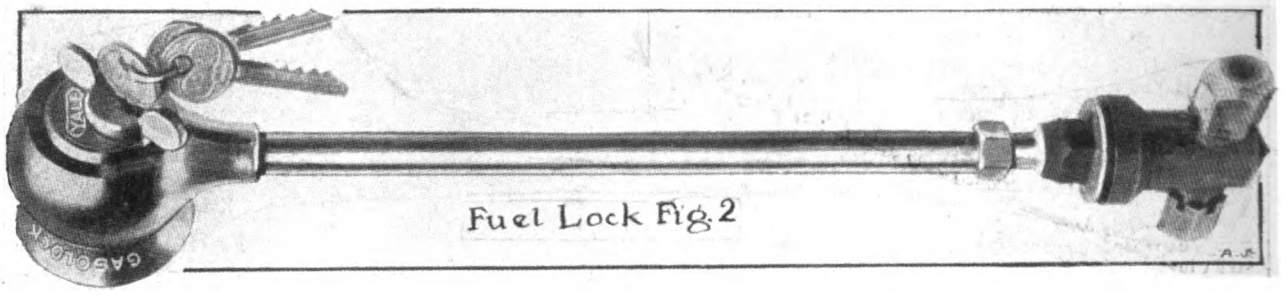
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FOREIGN MISCELLANY.

Fuel locks.—Devices of this nature are constantly appearing on the French market, a circumstance which would seem to point to the fact that unauthorised interference with cars is of more frequent occurrence there than is the case over here. The lock illustrated in Fig. 1 (from *Omnia*), is of the letter lock variety. Now the petrol piping on most cars is located somewhere beneath the floor boards, and we can imagine a pleasanter job than trying to get the right combination to open the lock on a dark night. A more practical appliance is the Gasolock which is being introduced in America. The locking part is attached to the dashboard, while the valve is inserted in the petrol piping under the floor; furthermore, the manipulation of a key would seem to be a simpler matter than working the elements of a letter lock. One disadvantage which seems to be inseparable from all kinds of locks is that in an emergency (*e.g.*, fire in the carburettor), such a device would take longer to close than an ordinary stop-cock.

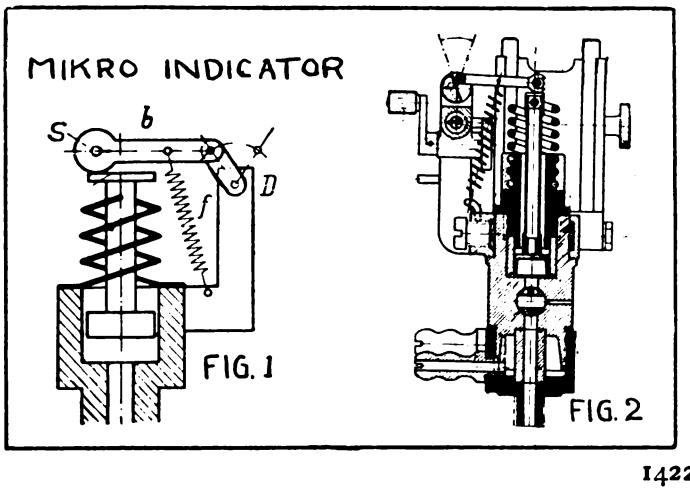


Fuel Lock Fig. 1

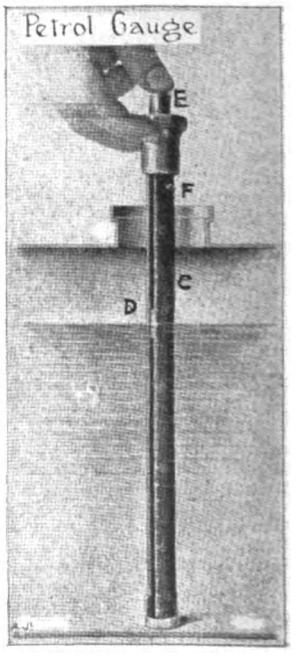


Fuel Lock Fig. 2

A new indicator.—The high speeds of revolution which are common in petrol motors and certain forms of steam engines, were a serious obstacle at one time to obtaining indicator diagrams from these power producers. The problem was solved by the introduction of the optical indicator, such as the Hospitalier, Hopkinson, &c., but at the cost of several advantages possessed by the older form of instrument. A German engineer has attempted to solve the difficulties attendant on the use of the ordinary indicator in an instrument called the "Mikro-Indicator." In this the maximum stroke of the piston is 2 mm., while that of the tracing point is the same. The diagrams are traced on a piece of smoked glass and are examined by means of a microscope. The records can be given permanency by treatment with some sort of size, and can easily be enlarged by means of a photographic apparatus. From the diagrammatic view of the instrument in Fig. 1, it will be seen that it is the tracing point and not the record which receives the reciprocating motion of the engine piston; the tracing point, S, is situated in the centre of the disc-shaped end of the lever *b*, the other end of the latter being attached to the small rocking lever pivoted at D, and receiving its reciprocating motion from the engine piston by an appropriate form of linkage. The pencil end of the lever, *b*, is free to slide over the top of the plunger, but is kept in contact with it by means of a coiled spring, *f*. Fig. 2, shows a sectional view of the complete instrument. This indicator is said to be quite steady up to 2,000 revs. per min.—*der Motorwagen.*



An ingenious petrol gauge has been placed on the market in France. As shown in the illustration reproduced herewith, it consists of a tube, C, split longitudinally in halves, the halves being hinged together down one side. A spring causes them to close up and grip a float, D, enclosed by them. To measure the quantity of petrol, the instrument is inserted in the tank and the button, E, pressed downward which causes the two halves of the tube to separate and so allows the float to rise or fall to the level of the fluid; by releasing the button, E, the float will be arrested in that position, and will accordingly, on withdrawal of the instrument, indicate the level of the petrol in the tank.—*Omnia.*



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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

102.

HOME-MADE ASBESTOS WASHERS THAT WONT BLOW OUT.—It often happens that a chauffeur, after taking down the exhaust-pipe of his engine, has to replace one or more of the copper asbestos washers that are used for making the joints gas-tight, either because one of the old washers has blown out or because—as it happens not infrequently—it has been damaged in the process of removing the pipe; others, too, may have been lost altogether. Some of these exhaust-joint washers are of a very peculiar shape and it is therefore often very difficult to get them replaced, especially when one lives the proverbial "miles" from anywhere, as is the case with me at present.

Of course we all know that nothing appears to be easier than cutting new washers from a sheet of asbestos, but when it comes to actually doing it I have often found it quite a job. Even when you have succeeded in cutting a good washer that will serve the purpose without the copper skin, you find that no amount of tightening the flange-bolts will keep it permanently gas-tight. It soon begins to leak and one fine afternoon there is a sharp hiss under the bonnet, and then good-bye washer. All you can find when you open the bonnet are a few bits of asbestos dangling around the flange-bolt and the rest of the washer has been blown to atoms. The reason for this chiefly consists in the fact that, when we cut an asbestos washer at home, we cut the opening for the exhaust passage exactly corresponding with the opening in the pipe. This is wrong, because when the washer is compressed between the flange and the casting it expands and part of the asbestos is squeezed into the pipe, thus obstructing the passage to some extent. The exhaust gases attack the pieces of asbestos projecting into the pipe and very quickly tear them out; but asbestos is a material that consists of a large number of fine threads which do not break off clean at the flange, but are, so to speak, pulled out by their roots from the main body of the washer. These minute openings then are attacked by the gases, which slowly but surely find their way into the washer, and once they get through it, there is no holding, but the whole washer blows out.

If we have to resort to a pure asbestos washer, it is, therefore, as well to cut the inner openings slightly larger than the bore of the pipe, so as to prevent part of the washer being squeezed into the way of the gases. It is also advisable to strengthen the washer by placing a loop of copper wire on either side of it, before tightening up the nuts of the flange-bolts. The rings should be of different diameter, so as not to cut through the washer. —*Countryman.*

103.

BRIGHT METAL PARTS IN FOGGY WEATHER.—With reference to the letter of R. Thomas, No. 96 in your "Chauffeurs' Experiences" page of November 2nd, in which the writer deals with "Bright Metal Parts in Foggy Weather," your correspondent may be interested to know that we are placing upon the market a new motor metal polish called "Carshine," which embodies some distinctive features. It is in powder form, used in conjunction with petrol, and we claim that this preparation gives not only a brighter polish, but a more permanent one than any other.

In nearly all the polishes now sold a high-flash spirit is used to enable the manufacturers to obtain cheap railway rates, consequently such polishes must necessarily be far from satisfactory. Petrol is a *low-flash* spirit, very pure, and gives a much better and more lasting polish, and one that will withstand fog and moisture for a much longer period than is usually the case.—*The County Chemical Co., Ltd., S. Jackson.*

R. Thomas, who wrote on the above subject two weeks ago, may be interested to hear that for a number of years I have been using a preparation called Silico Enamel to prevent tarnishing of brass and plated parts of my cars in damp and foggy weather. It is sold by ironmongers in sixpenny pots, and can be applied quite easily. First of all, it is necessary to thoroughly clean the part to be treated, and polish it well; then apply the enamel with a soft hair brush; the thinner you put it on the better it will be. When put on very thin it is quite invisible, and keeps the metal parts bright for a month or two, or even longer; it all depends on the care taken in applying it and on the way it is treated afterwards. During this time all you want to do is to rub them over with a chamois leather. Later on, when the enamel begins to crack and spots form on the metal underneath, it can be removed by means of a rag dipped in methylated spirits, and after cleaning and polishing the brass a new coat can be put on, which will last for a similar period. This procedure can be repeated as often as necessary throughout the damp season.

Such parts, however, that are liable to get hot, like the top of radiators and the roof of lamps, cannot be treated with the enamel, because when heated it turns brown. But for fittings such as door-handles, hood and wind-screen fittings, underside of lamps, and all other metal parts that do not get hot, I have found the enamel to save me a good deal of time when polishing up. I don't know who makes it, but it can be bought in almost any oil-shop or ironmonger's.—*A.D.*

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CORRESPONDENCE.

Vauxhall and Sunbeam.

SIR,—You publish in your issue of this date a letter with the title "Vauxhall Challenge to Sunbeam." Each time this misleading statement appears it will meet with prompt denial. There has been no "Vauxhall challenge."

The letter in question makes curious reading in a paper dated November 16th, after the events of November 4th, on which day a four-cylindered Vauxhall engine beat the world's record for 50 miles—a record that had been set up by a six-cylindered Sunbeam engine—and beat it by over four miles an hour. Your readers will be aware, too, that it has been our good fortune also to secure the 50 miles, the much-coveted ten-lap, and two other records in Class E, with an engine not larger than the Sunbeam 80 by 149.

We deplore the necessity for writing in this strain, but the Sunbeam Company have invited the reply. There is nothing for it but to give it them.

November 16th. VAUXHALL MOTORS, LTD.

A Question of Cylinder Capacity.

SIR,—We notice an error, no doubt entirely inadvertent, in the paragraph which appears in your issue for November 9th, dealing with the new records set up by a 20 h.p. Vauxhall at Brooklands on November 4th. The point at issue, however, is a very vital one. You state that the world's record for 50 miles—92·96 miles per hour—was set up by a 12–16 Sunbeam car. This is not the case. The car which set up this record was a 30-h.p. car with six cylinders of 90 bore by 160 stroke. This world's record was beaten by a Vauxhall engine with only four cylinders of 89·7 bore by 118 stroke.

It does not seem to be fully realised, indeed, that this astonishing performance—50 miles at the rate of 97·15 miles per hour—was achieved by a Vauxhall engine that comes within the three-litre class. In any case the 20-h.p. (R.A.C. rating) Vauxhall engine is not of larger cubic capacity than the 12–16 car referred to above. If an exact comparison be made it will be found that the cylinder capacity of the Vauxhall is 2983 cc., and that of the 12–16 car 2996 cc.

We are sure you will do us the justice of publishing this correction, as naturally we wish due credit to be given to us, while in no way desiring to disparage the performances of rival firms.

November 15th. VAUXHALL MOTORS, LTD.

The Unofficial Tyre Trial.

SIR,—Your correspondent, "William George" of Albert Gate, who under the cloak of anonymity (now for the first time confessed) endeavoured to cast reflections upon the Challenge Rubber Mills and the conduct of the tyre trial, reflections which he has made no attempt to withdraw although he has been unable to produce a shred of evidence to justify them, may, after this letter, have the floor to himself.

Mr. "William George," who wrote in a previous letter that my communications were, as he expected, courteous, now suggests that he adopted a *nom de plume* because he was corresponding "with a man so prone to personalities as Mr. Jones." One or the other statement is yet another misstatement to the discredit of Mr. "William George." I am content to take the decision of your readers who have read all the correspondence as to which statement is false.

Mr. "William George," having had a full and complete answer to the material and some of the immaterial points of his first letter, prefers now to drop the issue of the conduct of the tyre trial in order to ask questions as impertinent and entirely irrelevant as mine would be if I asked questions concerning his private life. We begin to understand why, in his quest for a simile to illustrate his argument, Mr. "William George" remembered the cuttle-fish.

Lord Tenterden has already written describing Mr. "William George's" questions as impertinent. Mr. A. W. Armstrong, of the R.A.C., has already expressed his disgust of Mr. "William George's" methods. Lord Exmouth has already expressed his agreement with both expressions of opinion. Mr. J. Bickford has already written, stating that he had addressed a letter to Mr. "William George" at his published address and had it returned "unknown." And we have had the halting admission from Mr. "William George" himself that the name under which he made his covert and unsubstantiated attack was a *nom de plume*, and the statement, after we had forced him to it, that the address he gave, which is a definite postal address, was really intended merely to indicate an area! What we have not had is an apology.

We have, therefore, nothing more to say to Mr. "William George." W. YARWORTH JONES, Managing Director,

November 18th. Challenge Rubber Mills.

The reply of the Challenge Rubber Mills to the R.A.C. edict disqualifying the Company and the Victor Tyres.

SIR,—Two weeks ago you published certain correspondence between the R.A.C. and the Challenge Rubber Mills in which the R.A.C. informed us that a special meeting of the Club had been convened for November 5th for the purpose of considering whether disqualification of Victor tyres should take place, and my Company was invited to send a representative to the meeting at 5.30 p.m. to show cause why the sentence of disqualification should not take place.

I attended the Club at the time appointed, 5.30 p.m., and was kept waiting until 6 p.m. without a message of any kind from the Club Committee or officials, and as I did not think it consistent with dignity to wait longer I then left.

The matter was advanced a stage further by the receipt of the following letter from the Club secretary:—

Royal Automobile Club, November 7th, 1912.

The Challenge Rubber Mills.

Re Victor-Dunlop-Michelin-Continental Tyre Trial.

Dear Sirs,—I am directed by the Competitions Committee to express its regret that your representative was unable to wait after 6 o'clock on Tuesday evening. The meeting began at 5.30 o'clock, as mentioned in my letter to you of the 30th October, and about half an hour was occupied in reading the correspondence which has passed between the Club and the Challenge Rubber Mills.

After it had been ascertained that your representative had left the Club, the committee proceeded to deal with the facts, and I was directed to inform you that the following resolution was passed:—

"That the Club, being satisfied that the company known as the Challenge Rubber Mills, and their managing director, Mr. W. Yarworth Jones, have infringed the competition rule of November 7th, 1906, with reference to trials or competitions in connection with certain trials of Victor tyres, declare the said company and their said director and the said tyres disqualified from taking part in any competition held under the competition rules of the Club."

I also enclose for your information copy of a statement which the committee of the Club directed to be published.

I beg to remain, yours faithfully,

(Signed) J. W. ORDE, Secretary.

(The copy of statement was duly published in AUTO. of November 16th, page 1380).

The following is copy of a letter sent in reply by my Company to the R.A.C.:—

November 18th, 1912.

J. W. Orde, Esq., Secretary, R.A.C.

Dear Sir,—I have your registered letter of the 7th inst., covering a copy of the communication which the Club has made to the Press and which has been duly published in several journals.

You have also caused a letter to be sent on behalf of the Club to the Press in which you state that "in a circular entitled 'Banned by the Censor' part of a letter signed by myself and directed to Mr. Yarworth Jones, of the Challenge Rubber Mills, is omitted."

In reply to your letter to the Press I remind you that the "Banned by the Censor" circular recites that my company was disqualified in all competitions and the "part" of the letter referred to was *all* of your letter which dealt with the disqualification. The irrelevant part I did not publish, simply quoting the rule under which we were disqualified. The portion of your letter which *was* published I submit fully covered that part. The remainder of your letter was another offer, which was therefore *not* material to the disqualification. But this omitted paragraph containing the offer will be found, as will subsequently appear, to be very material to *this* letter.

The communication to the Press is presumably published in order that the position of the Club in this matter shall be clear. After five months of waiting an official justification of its action is attempted.

That "justification" is perhaps the saddest document the R.A.C. has ever issued. It is compact of misrepresentation and equivocation.

The R.A.C. did intimate its readiness to conduct the Trial subject to certain regulations being agreed upon, *but those regulations, twelve in all, as laid down by the Club, were definitely agreed upon in writing.* The Club agreed to carry out the Test, and asked for their fees, which were paid. That completed the contract. *Only two days elapsed* between the Club receiving our cheque and its curt refusal to proceed, the refusal being unaccompanied by any reason. At no time during the negotiation was the matter of Victor stockists mentioned, neither is there any mention of the matter in the written regulations referred to.

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The Club's statement to the Press, if true, convicts it of amazing ineptitude and lack of business acumen. The motorist is asked seriously to believe that the R.A.C. could not devise means by which to ensure that the Victor tyres used in the test were ordinary stock tyres as sold to the public. The motorist is asked again to believe that the Club would have no method of discovering at any moment during the course of the trials whether Victor tyres are in every respect normal.

If true, here indeed are admissions of gross inefficiency both on the part of the R.A.C. Trials Committee and the Technical Department of the R.A.C. which, we are to believe, does not know enough of tyre construction to be able to make an intelligent comparison between the trial tyres and ordinary Victor stock!

The R.A.C. statement suggests that the stocks of other competitors' tyres purchased in the country might have deteriorated by comparison with the always fresh Victor stock (the R.A.C. statement is capable of only these two constructions). This idea cannot, however, be entertained for a moment for the reason that it was always open to the R.A.C. privately to purchase (as it intended to do) all test tyres from the head depôt of each company.

We do not believe that such ineptitude and ignorance exist at the R.A.C. But that leaves us with one other alternative only, viz., that the R.A.C.'s present reason for refusing to conduct the trial is untrue. I shall endeavour to show it is, as a matter of *fact*, untrue.

I should like to ask the Club through you, Sir, what it means when it writes that Victor tyres could "practically" only be selected from one stock? Do they mean that they found there were other stocks about the country? If so, why were the Victor tyres not privately purchased from these stocks if the Club preferred not to purchase from Headquarters? If not, is "practically" a word used to gloss the fact that the Club did not make inquiries at all? If the Club means that there are no other stocks, then how *does* it know? It did not put the question to us. The only other way would be to communicate with the 5,000 motor agents and tyre stockists in the United Kingdom. Did it in point of fact communicate with *one* of those stockists? Since the receipt of your letter our travellers have called upon over 300, and each of them state that they have had no communication on the subject either from the R.A.C. or the Trade Society. This evidence in itself proves the Club's reason to be a concoction.

I will now deal with the paragraph in your letter which you stated in the Press I had omitted from the circular "Banned by the Censor." It reads:—

"I would remind you that the offer made to you by the Club still stands, namely, that the Club will conduct a trial of Victor tyres and issue the certificate therefor, while at the end of the trial, if you so desire, it would be open to you to challenge other tyre companies, depositing the amount of your challenge with the Club."

The letter which contains this paragraph was sent to us *two weeks after* the unofficial trial now proceeding had commenced, and six weeks *after* you had been told that a test of Victor tyres alone did not interest us. Moreover you are fully aware we had publicly challenged without acceptance the three tyre companies whose tyres you undertook to test against Victor tyres.

But the point now is that this paragraph supplies more evidence, if that were required, that the Club's reason now announced is a badly devised concoction. If the real objection to the Victor tyres in the comparative trial was that they could not be bought privately from anywhere except the one stock, that objection would apply with equal force to a test of Victor tyres alone. Again, it would still apply when, the individual trial being finished, we challenged the other tyre companies in accordance with the R.A.C.'s own suggestion.

The Club was prepared to conduct a comparative test of tyres although "the conditions of selection of tyres involved" would have been the same as now. Yet it says those conditions made it impossible for a competitive trial to be carried out fairly. The Club gets deeper in the mire at every sentence. If its "reason" applied before it must apply now, or at any future time the Club undertook such a trial. If it would not apply now it could not have applied then.

Every statement made by the Club and its officials has been in flat contradiction of the reason now given for its action. Really, Sir, your Club must imagine the motoring public to be very obtuse people indeed if it thinks to convince them by such palpably misleading statements. Far better that the Club should have preserved silence than that it should have prejudiced its reputation for integrity so disastrously.

There are several other points we may refer to at some later date, but we must deal now with the Club's plaintive protest against the suggestion that they were working with the Trade because they wrote threatening us with excommunication on behalf of the Club and the trade society. The Club's protest in their published statement to the Press reads as follows:—

"A great deal has been said about the joint action of the R.A.C. and the Society of Motor Manufacturers and Traders in this matter. *The only reason why* the names of these two bodies were coupled in one letter from the Club was in order that the Challenge Rubber Mills might clearly understand that in conducting an unofficial trial they would incur not only the penalties that follow the breaking of the Club rules, but also such penalties as the S.M.M.T. might inflict."

So the only reason why the names of the Club and the trade society were coupled in one letter from the Club is not that the latter was a party to it but merely because the Club very kindly wished to inform us that we ran the risk of incurring such penalties as the S.M.M.T. *might* inflict. Note please that the trade society's penalties had not been inflicted. The Club's penalties had been, *vide* the letter already referred to.

"Victor tyres will be disqualified in all competitions (including Brooklands) at home and abroad, and cannot be exhibited at the Olympia Exhibition, nor would any car fitted with such tyres be admitted to the Exhibition."

(I had thought that the Olympia Exhibition was conducted exclusively by the S.M.M.T.)

I wonder now what is going to happen to us when the trade society really gets busy? If their penalties equal those of the Club we seem to be in for a warm time. Who would imagine that we were living in a country where "restraint of trade" is in law a serious offence—in America even a criminal offence. Well we must bear what comes with fortitude.

Meanwhile we are thankful the R.A.C.'s frigid reserve has been broken down, and that it has at last come out into the open. We were sure that the kindly offices of the many thousand private motorists who have been supporting our attitude and the tyre trial all through would, in conjunction with the views expressed by the Press, have the effect of making the Sphinx speak. We only regret very sincerely that, after so long a silence, the Sphinx should have spoken with so uncertain a voice.

I wonder if the Sphinx would have spoken even now if it could have foreseen this concluding paragraph of our letter, or, when speaking, would have made the same statements? Its *one* and *only* reason for not going on with the Test was the alleged difficulty of getting tyres under conditions which would be fair to all competitors.

There is also what is, in effect, a denial that the R.A.C. worked with the trade society in this matter. Very well, I now beg to inform you that I have forwarded two cheques of £25 each (one to *Truth* and one to another journal), to be given to the Benevolent Fund of the Society of Motor Manufacturers and Traders if the R.A.C. can prove to the satisfaction of either of the two editors that *any* of the following statements are incorrect.

1st. That a meeting of the Joint Committee of the Royal Automobile Club and the Society of Motor Manufacturers and Traders was held at the Club's premises on the 18th June last (the Club's letter declining to proceed with the test was sent to us on the 19th).

2nd. That at this meeting the question whether it would be advisable to conduct such test was discussed, and that in the result, the said Committee determined to decline the test on *three* grounds —not one.

3rd. That one of the grounds was "That the proposed test was to be carried out without the consent or co-operation of the said three manufacturers."

4th. That the said three manufacturers are all members of the Society of Motor Manufacturers and Traders.

The remaining two reasons, together with other interesting data, we shall be pleased to publish when we receive a reply to this letter.

We are sincerely sorry that we should be compelled to expose the impotence of the Club as a business body, and its real position in this connection. If ultimately, through the continued kindness and favour of the motoring public and the Press, we are able to prove that such grossly iniquitous edicts as this last from the Club directed against ourselves, are as feeble and futile as they are fatuous and ineffectual, we shall not be surprised. As matters stand the integrity of the Club is impeached.

I am sending a copy of this letter to the Press.

Yours faithfully,

W. YARWORTH JONES, Managing Director,

November 18th. Challenge Rubber Mills.

Re Cycle Cars.

SIR,—I regret there was an error in my letter published in your last issue, the limit of cycle car chassis weight is 6 cwt., and the engine piston displacement not to exceed 1,100 c.c.

I think it in the very best interests of this promising class of motoring to point out that the ordinary powerful motor bicycle engine appears not to be suitable for the continuous heavy duty imposed in propelling a cycle car, and an extra heavy fly-wheel does not improve this as applied to a motor bicycle it can seldom be

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developing its maximum power, and when it is it is being forced rapidly through the air. The fewer the cylinders, the greater the difficulty of keeping the engine cool, particularly as applied to a cycle car, and it is not every one's wish to stop at the bottom of a hill to let the engine cool, to say nothing of belt or overheated worm troubles. For the benefit of your readers I may also state that my experience certainly dictates the necessity of the lowest gear being not four to one relative to the top gear, but certainly not less than five times that of the top gear. In other words, if the top gear is such that the engine makes four revolutions to one of the road wheels the lowest gear and the reverse should be such that the engine makes not less than 4 by 5 = 20 revolutions while the road wheels turn round once. If Olympia was in the neighbourhood of the Crystal Palace there would be ample opportunity of verifying this caution.

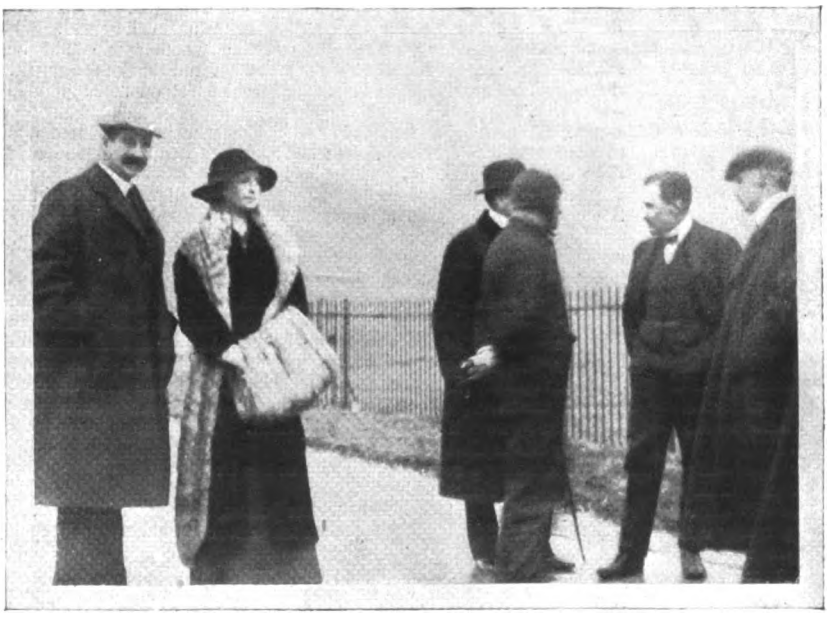
May I also recommend all your readers to carefuliy read the descriptive matter on chassis, &c., in your journal, as invariably there is directly expressed or hinted at the advantage or disadvantage of some feature or proportion, and which in my opinion is of inestimable value towards the improvement of the breed of the British built vehicle.

Penge. A. E. PARNACOTT.

RACES, RECORDS, AND TRIALS.

Record Breaking by a Talbot.

TALBOT cars made a brilliant *début* among record breakers at Brooklands on Saturday. With Mr. Percy Lambert at the wheel, Lord Shrewsbury's 25·6 rating Talbot attained a speed of 113·28 miles an hour, which beats all the speeds recorded at Brooklands, with the exception of those made by Hemery on the big 84·8 rating Benz, which did 128 miles per hour. Except that the pistons had been lightened and the connecting-rods drilled out, the chassis was ordinary standard practice, but a wind-cutting body was fitted and also discs over the wheels. After the car had finished, the engine was examined by Major Lindsay-Lloyd, and certified to be of 4 ins. bore. The car set out with the object of beating the records in the Class F, and in the 26 rating class, but it stopped at the end of three laps, by which time it had captured three records. The half-mile was covered in 15·89 secs. at a speed of 113·28 miles per hour, the kilom. in 19·83 secs. at a speed of 112·81 miles per hour, and the mile in 32·22 secs. at a speed of 111·73 miles per hour. One complete lap of $2\frac{3}{4}$ miles was covered from a flying start at 109·43 miles per hour. The achievement was a great triumph for the British industry in that while foreign manufacturers have built specially high-powered cars for racing and record purposes, the standard all-British Talbot has beaten all speed records except those made by a 200-h.p. car.



THE TALBOT RECORD AT BROOKLANDS.—After the event. From left to right: Lord Ingestre, Lady Ingestre, Mr. Percy Lambert (who drove the car), Lord Shrewsbury (Chairman of the Talbot Co.), standing behind Mr. Lambert; Major Lindsay Lloyd, who timed the speeds; and Mr. G. P. Mills, works manager of Talbots.

New 50 Miles World's Record.

AT its first appearance at Brooklands on Friday of last week, the 60-h.p. Excelsior car which Christiaens has driven so well in various competitions in France broke the world's record for 50 miles, although tyre trouble prevented the driver from accomplishing the purpose of driving 100 miles in an hour. Two attempts were made, and in the first, after covering the first lap in 1 min. $56\frac{1}{5}$ secs., Christiaens improved the time during the second lap to 1 min. 36 secs., giving a speed of 103·76 miles, and also did the third round at the same pace. A slight adjustment then necessitated a stop, and in the second trial in the afternoon, the 50 miles were covered in 29 mins. 18·45 secs., giving a speed of 102·36 m.p.h. The previous record was made by the 20·1-h.p. Vauxhall on November 4th, the time being 30 mins. 52·74 secs. and the speed 97·15 m.p.h.

New Motor Cycle and Cycle Car Records.

BROOKLANDS was the scene of more record breaking on Tuesday last, when S. L. Bailey on a $2\frac{3}{4}$-h.p. Douglas beat the records from 4 to 6 hours in B class, his new figures being: 4 hours, 173 miles 786 yards; 5 hours, 223 miles 864 yards; 6 hours, 264 miles 216 yards. The average speed worked out to 43·67 m.p.h., and the Douglas also made new records for 200 miles, 4h. 30m. $22\frac{4}{5}$s., and for 250 miles, 5h. 43m. $28\frac{3}{5}$s.

J. T. Wood on a G.W.K. cycle car beat the hour and fifty mile records for this type of vehicle. He drove 56 miles 76 yards in the hour and did the 50 miles in 53 mins. $8\frac{3}{5}$ secs.

War Office and Commercial Vehicles.

REGULATIONS have now been issued by the War Office concerning the trials of heavy vehicles, which will qualify them as a type suitable for earning the Government subsidy. The first part of the trial will be run by the makers from their own works, and will consist of three weeks, during each of which at least 200 miles must be covered. The second part of the trial will be under the control of the War Department, will commence at Aldershot on February 24th next, will last about four weeks, and will take the form of eighteen daily runs of 72 or 84 miles for Class A, and 84 or 98 miles for Class B. In the trials held last August, only two vehicles qualified, both by Leyland Motors, Ltd., one in Class A to carry a load of 3 tons, and the other in Class B for a load of 30 cwts.

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MOTOR CYCLE MATTERS.

By "MULTI."

A Tip for Side-carists.

It is common practice with side-carists, as it is with me, to remove the back tyre so soon as it shows appreciable signs of wear, afterwards making use of it, as required, on either the front wheel of the bicycle or on the side-car. I have found it to be an excellent precaution in all such cases to solution an ordinary leather puncture-proof band, such as are largely used by pedal cyclists, inside the cover. These bands may be obtained from almost any cycle dealer at about 9*d.* each, and the only point of special note in fitting them satisfactorily is that many coats of solution are necessary, both on cover and band, each coat being brushed well into the fabric of the cover with a stiff hogshair brush and allowed to dry before the next is applied. My own method is to give one coat of solution to each before leaving for business in the morning and on my return home in the evening they are both ready for another, the process being repeated for about three days, after which the cover will be ready for use. The saving in roadside trouble and tyre bill by following the above suggestion will very soon be appreciated.

Of course, the cover should, at the same time, be thoroughly overhauled for weak places, but this is so obvious that it scarcely needs mention.

The Need for Adequate Springing.

Time was, in the days when motor-cycling was confined almost entirely to the young man with a leaning towards sport, when the subject of springing was not of the vital importance it has since become. That same young man will probably be older now by some years, for which reason it is likely that even to him the question of adequate springing has assumed a new significance. (I speak feelingly on this matter.) Recent years, also, have brought a considerable increase in the number of converts of a more advanced age, and more attention has had to be given to the matter of personal comfort, until we find that front spring forks are now universal, except in the case of some few machines built expressly for racing purposes. Saddles, too, have been much improved, so much so that on fair roads with the best of them, in conjunction with spring front forks, the need for further improvement in this direction does not make itself convincingly felt. But all roads are not even fair; most in the vicinity of large towns, as a matter of fact, are vile, and in such cases further insulation from road shocks is essential if the movement is to make further progress among this class of rider.

In quite a few machines, of course, both wheels are so sprung, or at least the rider is insulated fore and aft, notably the B.A.T., N.S.U., A.S.L., P.V., Charles Edmunds and T.A.C., while the Rex cantilever seat is an excellent device answering the same purpose; but these are comparatively few among the host of machines at present on the market, and it is my opinion that manufacturers generally will find that serious attention to this matter will be imperative in the near future.

Rear-Springs and Sideslips.

Quite recently I had a trial run on a machine that shall be nameless, but which was fitted with rear-springing of the type where the back forks are hinged to lugs on the bottom bracket. The machine was not new, and a certain amount of play had developed in the hinges, which I did not notice at the time I took over the machine. My way led along the Uxbridge Road, of evil memory, and remarkably smooth was the running over the atrocious surface, thanks to the after-spring. I noticed a curious sense of instability, however, every time I struck a recently-watered patch of roadway, which, after a time, began to tell on my nervous system to such an extent that I was literally in a state of "blue funk" whenever the least signs of grease had to be negotiated. At first the impression was that of a soft back tyre, heightened, perhaps, by the softening effect of the springing; but pumping the tyre till it was board hard did not in the least effect an improvement. At last the long expected happened—the machine slithered round 180 degrees of a circle, having the point of contact of the front tyre for its centre, and deposited me, unhurt in body but not in dignity, in a recumbent position unpleasantly near the ditch. Recalling the axiom that every effect has its cause, I determined to seek the latter, and, if successful, to put matters right, if possible. The most obvious thing to look for was the mal-alignment of the back wheel, but no trace of error in this respect was I able to find on inspection. It was while thus engaged, however, that I first noticed the play in the hinges: very slight at this point, it is true, but magnified considerably at the rear end of the forks by reason of their length, so that a movement of quite half an inch could be given to the rear extremity of the back wheel. Now this appeared to me to be altogether too small a cause for such a marked effect, but at least it must be contributory, so I set about effecting its remedy. As I expected, however, there was no means provided by the manufacturers for taking up wear in these parts, but a couple of steel washers, filed very thin, appeared to be all that was temporarily necessary for the purpose. It was rather a tedious job filing these down to the correct size, and not an easy matter to fit them in place, but it was in time duly accomplished and a fresh start made for my destination. A few miles' running, gingerly at first over the greasy patches, convinced me that I had cured the trouble, for the difference in the stability if the machine was beyond belief, and the remainder of the journey, 216 miles in all, was accomplished without further misbehaviour in this direction.

The moral of this is, of course, that with this form of springing some ready means of taking up wear must be provided by the designer, otherwise a really good system is rendered a positive source of danger to the machine and rider after wear has begun to make itself manifest. It is a perfectly simple matter to arrange for this adjustment, all that is necessary being the application of ball-bearings to the hinge-pins or by making the pins and their seatings conical in shape, in either case, of course, providing the necessary facilities for lubrication.



The Cycle Car Definition.

ALTHOUGH it has only stood for about six months, the definition of a cycle car as agreed between the Royal Automobile Club and the Auto-Cycle Union has now been amended, as regards the weight, to read as follows:—

The chassis weight must not exceed 6 cwt., inclusive of the weight of the tyres; or in the case of those vehicles the bodies of which are not separable from the chassis, the total weight, all on and ready for the road, but without fuel, oil, or water, must not exceed 7 cwt.

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—*Chester-Wrexham Road.*—Re-metalling 10 miles south of Chester whole width of road, roller at work, no lights at night. Roller at work 1 mile south of Chester, lights at night.

There is a lot of activity regarding the number plates and the illuminated plates in the district.

LAKE DISTRICT.—*Kensal-Keswick Road.*—The work on the road at Ings between the 6th and 7th milestones is stopped, lighted at night.

LANCASHIRE.—Members are specially requested to drive carefully through Poulton-le-Fylde and district.

Preston-Chorley Road.—Setts are being laid half width on Walton Hill, 1¼ miles south of Preston, lights at night. Special care is necessary here as there is only enough space for one car to pass.

Preston-Wigan Road.—Full width in rough condition and many holes between Bamber Bridge and Standish.

Preston-Blackburn Road.—Loose metal in centre of road for a distance of 25 yards on the hill, just entering New Hall Lane, east of Preston, unprotected at night.

Leigh-Newton-le-Willows Road.—Control likely to be working in the district of Leigh, on the way to Newton-le-Willows.

EAST.

IPSWICH-LOWESTOFT ROAD.—The Bridge over the river at the northern approach to Wickham Market has collapsed, and it will be at least a month before a temporary bridge is erected.

NEWMARKET DISTRICT.—*Royston-Newmarket Road.*—Water is out under the railway arch at Pampisford Station.

SOUTH.

BRIGHTON ROAD.—Roller working at Redhill on the Brighton Road, full width, also Station Road is under repair. Control likely to be working at Burgh Heath and at Smitham Bottom.

LONDON DISTRICT.—On account of timing operations, special care is necessary at:—Regent's Park Road, N.W.; near Church End Station, Finchley, Golder's Green, between Redcliffe Gardens and the Boltons, Earl's Court Road, S.W., Victoria Embankment, Albany Gate, Regent's Park, Mitcham, Morden, Sutton, Banstead, Croydon, Purley, between Wimbledon and Ewell, Hounslow-Staines, Hounslow-Colnbrook, Harlesden, Maida Vale, Highgate, Holloway, Lewisham, Sudbury to Harrow.

MIDDLESEX.—Control likely to be working on the main Pinner Road, near Eastcote.

SOUTHAMPTON ROAD. — Controls working at night through Egham. Foundations being laid on the causeway between Staines Bridge and Egham.

KENT.—*London-Dover Road.*—Pipes being laid at Canterbury in the High Street for 100 yards, road closed; alternative route take the left at the Tower, Pound Lane, and then right to Guildhall Street, and *vice versa*.

SURREY.—*Portsmouth Road.*—Flashlight controls are working between Kingston and Esher. Roller at work full width 1½ miles north of Guildford, lights at night—unrolled metal left on the road.

Eastbourne Road.—Special care is advisable as a control may be working near Kenley Police Station, and the Gas Works, Whyteleafe.

SUSSEX.—Members are requested to observe the 10-mile limit at Uckfield. Surface repairs in hand between Brighton, Rottingdean, and Newhaven and between Eridge and Boar's Head.

WEST.

OXFORD-CHELTENHAM ROAD.—Under repair at Barrington, 19 miles from Oxford, whole width.

Cheltenham-Northleach Road.—Temporary bridge is erected at Andoversford, only space for one car to pass at the time; great care is needed.

Another Omnibus Service Gone.

THE number of horse omnibuses is still dwindling away, and last Saturday saw the end of another service, the old familiar black 'buses which used to run from Waterloo to Liverpool Street, and which failed to meet the competition of the motor 'buses.



At a great motor wedding in Paris this week-end at the St. Honore d'Eylan Church—that of the Marquis de Salamanca with Mdlle. Martinez de Hoz—several Rolls-Royce cars were a striking feature in the line of automobiles, one of these being the choice of the newly married couple.

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Olympia Record Again Beaten.

THOSE who visited Olympia last week, especially during the busy periods, will not be surprised to hear that the attendance during the eight days that the Show was open easily beat last year's records. The aggregate total was 255,522—an increase of about 30,000 on last year's figures.

Now for the Paris Show.

AFTER Olympia, the Grand Palais, where the series of annual shows of motor cars are to be resumed. The Paris Salon will open on December 7th and close on Christmas Day. There has been such a large demand for space that a number of firms have had to be disappointed and they are arranging to hold an overflow show in the Jardin de Paris.

Rear Lights Compulsory in Surrey.

SURREY COUNTY COUNCIL has now joined the steadily increasing band of authorities which have passed by-laws making it compulsory on all vehicles to have a red light, or a reflex light, at the back when traversing the roads after dark.

Motor Vehicles in London.

SOME figures just published by the London County Council show that since the passing of the Motor Car Act of 1903 the number of vehicles registered in London has totalled 82,837, including 56,602 motor cars, 4,868 heavy vehicles, and 21,267 motor cycles. Drivers' licences, to the number of 245,585, have been issued during the same period.

I.A.E. Graduates' Prizes.

THE prize annually offered for the best paper read by a graduate at the Institution of Automobile Engineers has been awarded for last session to Mr. W. Betterton, for his paper on "Gears," read before the Birmingham section. The second prize has also been awarded to Mr. G. M. Junner, of London, for his paper on "Carburation."

Taxi-cab Strike Threatened.

A DEFINITE move with regard to the threatened taxi-cab strike has now been taken by the London Cab-drivers Trade Union in the issue of a manifesto which indicates that unless there is some alteration in the situation as regards the price of petrol there will be trouble in January.

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LEGAL INTELLIGENCE.

Taxi-cabbies and Fog.

THAT "dense fog" is a reasonable excuse for a taxi-cab driver refusing to drive a fare was decided by Mr. Plowden at Marylebone Police Court last week. The driver Edward Perrett summoned his passenger for the recovery of his fare, 1*s.* 2*d.* For the driver it was stated that he was hired at St. James' to drive to St. John's Wood, but at Clarence Gate, Regent's Park, the fog was so dense that he could scarcely see his hand in front of him. Close by a 'bus had run on to the pavement, and, being convinced that it would be dangerous to proceed further with the cab, he told the defendant so, and ask him to pay the the 1*s.* 2*d.* that was then registered on the meter, but he refused.

The defendant stated he walked a distance of 300 yards, and then took a 'bus to Marlborough Road.

Mr. Plowden said everything depended on the reasonableness of the excuse which the cab-driver had put forward for not fulfilling his contract. If he was plying for hire and refused to take a fare he was liable to a penalty, and, by analogy, if he took a fare and then refused to drive to the journey's end without reasonable cause he would be clearly in the wrong. But if he did his best to carry out the contract and was stopped by no fault of his own, and if, having regard to the safety of the fare and of himself, he refused, owing to the fog, which was almost like an act of God, over which he had no control, then, according to his worship's idea of equity, the cabman was entitled to the *quantum meruit*. He therefore gave judgment for 1*s.* 2*d.* and 10*s.* 6*d.* costs.

Belsize Motors, Ltd.

THE directors' report to September 30th states that the trading profit for the year amounts to £51,037 2*s.* 6*d.* After deducting depreciation of land and buildings, machinery, plant, loose tools, &c., share commission, debenture interest, and after making provision for all bad and doubtful debts, there remains a balance of £34,444 0*s.* 2*d.*; this, added to the amount brought forward from last year, £10,053 5*s.* 8*d.*, less directors' and auditors' fees and income tax, £3,585 10*s.*, and less interim dividend at the rate of 8 per cent. per annum, paid May 13th, 1912, £5,650 2*s.*, leaves £35,261 13*s.* 10*d.* From this the directors recommend the payment of a final dividend at the rate of 12 per cent. per annum for the half year (making 10 per cent. for the year), less income tax, £8,475; to write off goodwill account £3,000; to place to reserve account £15,000, and to carry forward £8,786 13*s.* 10*d.*, subject to provision for directors' and auditors' fees, and income tax.

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MIDLAND MEMS.

I THINK there is hardly anything discussed so much in trade circles to-day as the cycle car, and there seems to be a general consensus of opinion that the forthcoming Olympia Show, November 25th–30th, will mark one of the most important exhibitions ever held. In the Midlands it is an ever-present topic of conversation among all shades where interest is felt in the matter. I understand that something round about 50 various types of cycle cars will be shown, and there is a general keenness felt with regard to this exhibition, which somehow reminds one of the good old "boom" days. There is small doubt that the cycle car is destined to supply an undoubted want.

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Exhibitors at last week's show are now home again—"in harness," and on all hands appear to be on excellent terms with themselves over the business done at Olympia. I believe that exceptionally good business was booked, and that 1913 will prove for many exhibitors to be a glorious year.

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Midland readers who are interested in the methods of tyre manufacture would do well to get particulars of the cinematographic exhibition which the Goodrich Co. intend holding shortly at the Temperance Hall, Temple Street, Birmingham.

I understand this exhibition and lecture will interestingly illustrate the evolution of the motor tyre from the raw rubber to the finished product. Invitation tickets can be obtained from Hart and Co., Broad Street, Birmingham, and Goodwin's Motor Garage, John Bright Street, Birmingham.

• • •

Mr. George Roberts, of the Roberts Non-skid Co., Birmingham, is now back from his recent trip to Scotland and Ireland, and has, I am told, done excellently in both countries.

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I believe that one of the first firms to intimate reductions in tyre prices is the Midland Rubber Co., Birmingham. The rates of this Company are now 15 per cent. lower for both tyres and tubes, while the minimum guarantee of 3,000 miles per cover is still maintained. This very old standing firm (they have been doing business for the past 60 years) were recently successful in obtaining an important order from the War Office, for Solid band Tyres, to be used in the Mechanical Transport Department of the Army Service Corps.

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For the information of Birmingham and District traders, a "trip" from Birmingham to Olympia will be run by The Cycle and Motor Trades Benevolent Fund on Saturday, November 30th.

The excursion is to be a purely trade affair, and all particulars can be had on application to Mr. A. B. Williams, 13, Weaman Street, Birmingham, or Mr. J. Francis, 50, Alexandra Road, Acocks Green, Birmingham.

• • •

"Sweet are the uses of—advertising," and what a real tit-bit the B.S.A. gave us on the front cover of *London Opinion* the week prior to the Motor Show.

Here the artist had tastefully drawn a couple of bewitching damsels—the one in the foreground—to judge from her expression—evidently waiting for someone to buy her a Car, while the maiden behind her was prettily seated at the wheel of a Car, on the radiator of which, the small letters B.S.A. could be seen. In the left-hand bottom corner of the picture were the words "The best thing on Wheels." In view of some of the present-day advertising, I considered this not only smart enterprise, but decidedly neat and high-class.

PEJAY.

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ROUNDABOUT NOTES.

THE King's Hall at the Holborn Restaurant was crowded on Tuesday, last week, at the annual banquet of the Agents' Section of the Society of Motor Manufacturers and Traders. Mr. A. Noel Mobbs took the Chair, and was supported by Messrs. W. M. Letts, E. M. C. Instone, T. C. Pullinger, A. R. Atkey, Capt. Sealy Clarke, &c. Capt. Sealy Clarke proposed the toast of "The Agents' Section," and it was responded to by Mr. Noel Mobbs, who referred to the good work that was being done for the agents by the M.T.A. Mr. W. M. Letts proposed the toast of "His Guests," which was responded to by Mr. A. Spurrier and Mr. Stenson Cooke, Mr. Spurrier pointing out that the agents had lost a good deal through not taking a greater interest in commercial vehicles.

IN sending us a copy of the latest catalogue of Skew tyres, Messrs. Oylers, Ltd., of 35, New Cavendish Street, London, W., point out that they give a very definite written guarantee with each cover, guaranteeing the heavy square non-skid tyres for 4,000 miles and the other three tyres for 3,000 miles. The guarantee is particularly equitable; and in the remote possibility of a client feeling that he has not received fair treatment, he can appeal to an unbiassed judge, whose decision Messrs. Oylers agree to accept. The firm have also just issued a new price list of tyres suitable for motor cycles and cycle cars. These tyres are made of similar material to the car tyres.

MR. T. C. PULLINGER was accorded last week the somewhat unusual honour of being entertained at dinner by the agents of the Arrol-Johnston firm. Mr. W. Reece occupied the chair at the function, which took place at the Trocadero Restaurant, London, and on behalf of the agents presented Mr. Pullinger with a very fine silver salver, in recognition of the success which had attended his efforts in reorganizing the Arrol-Johnston Co. Mr. A. R. Atkey, of Nottingham, said that they hoped the gathering might become an annual one, and that whenever they met together, Mr. Pullinger would have the same tale to tell, that the demand for Arrol-Johnstons was still greater than the supply.

"THE car of perfect comfort" is the slogan of the Siddeley-Deasy Motor Car Co., and it is the title of an artistic brochure which has been published in the interests of these cars. Besides giving illustrations and full details of the various models, there is a section giving particulars of suitable accessories of various makes, while an unusual feature is a set of illustrations of the free equipment provided with every Siddeley-Deasy car so that the purchaser may know practically what he is buying. There is also a supplement giving photographic illustrations of elegant coachwork built by various coachmakers for Siddeley-Deasy cars.

SHELL spirit has indeed been doing well at Brooklands lately. It was used in the Vauxhall car which beat the 50-mile world's record, and garnered a sheaf of class records on November 4th. It was likewise used on a 60-h.p. Excelsior car which broke the 50-mile world's record last week; while the 25-h.p. Talbot, which made such a wonderful record breaking run on Saturday of last week, also used Shell, thereby doing its share in obtaining a speed of 113·28 m.p.h.

CERTAINLY not without honour in their own country are the S.C.A.T. cars, made in Turin and sold in Great Britain and the Colonies by Messrs. Newton and Bennett, Ltd. We learn that a 15-h.p. S.C.A.T. has been purchased by H.M. the Queen-Mother of Italy. It will be remembered that standard 22-h.p. S.C.A.Ts. won the famous Targa Florio race in 1911 and 1912.

ONE of the striking features of the Motor Car Show was the number of cars fitted with dynamo electric lighting equipments. One observant visitor found that fourteen different makes were represented, but he also noted that there were more C.A.V. dynamo lighting outfits installed than of all the other makes put together. Another proof of the popularity of the C.A.V. system.

MANY thanks to Argylls, Ltd., for a very fine fountain pen, which is much appreciated. It is a practical present, and will serve for many a long day to remind the recipients—although we doubt if they want reminding—of the practical methods pursued by Mr. J. S. Matthew and his capable staff in the management of Argylls, Ltd.

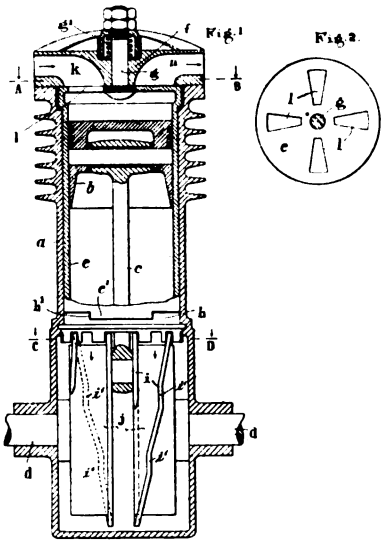
⊛ ⊛ ⊛ ⊛

BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

23,332. October 23rd, 1911. Improvements in and relating to Internal Combustion Engines. F. S. James, Buffalo Works, Strand-on-Green, Chiswick, R. G. Orr, 708, Salisbury House, London Wall, E.C., and G. J. Maude, 49, Strand-on-Green, Chiswick. This invention relates to an internal combustion engine in which the piston is adapted to reciprocate within a rotary liner arranged within the cylinder, effecting communication between its interior, and the inlet and exhaust ports at the desired times. Fig. 1 is a sectional elevation. Fig. 2 is a plan view of the top of the rotating liner. The cylinder, *a*, piston *b*, piston rod, *c*, and shaft, *d*, are of usual kind. Within the cylinder a rotatable liner, *e*, is fitted and is supported in place at its higher end by the head, *f*, of the cylinder by means of a bolt, *g*, passed through both the end of the liner and the said head, the flat contacting surfaces of both being gas-tight. The liner is free to rotate with the bolt, *g*, and is turned by a toothed ring, *h*, rotatably supported between the crank-case and the cylinder. The rotation of the ring is transferred to the liner by the projections, e^1, e^1, in the end of the liner fitting within recesses, h^1, on the ring. The under side of the ring, *h*, is cut to receive a worm or helix, *i*, the convolutions of which are interrupted by straight portions, i^1. The worm is formed on the crank cheeks, *j*, the arrangement of worm being such that the liner is turned to bring one of the openings, *l*, opposite the intake, *k*, when the piston descends, to close all the openings when it ascends, to bring an opening opposite the sparking plug and when the piston has again descended or thereabouts, and is re-ascending to bring an opening opposite the exhaust, *n*, the sequence being repeated for the charging, compressing, firing and scavenging of the cylinder. The crank is out of line with the centre of the cylinder for the purpose of allowing the interrupted worm or helix to gear with the



front and clear the rear portion of the ring. The interrupted worm is of irregular curvature for the purpose of producing the required intermittent movement of the liner and hold it stationary when compression and firing take place and also during part of charging and exhausting. The liner bolt, *g*, is made fast to and carried round by the liner, and the cap and sheath, g^1, are carried round by the bolt, a spring as shown is compressed by means of the nut thus holding up to the cylinder head suspended liner.—October 30th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published November 14th, 1912.

23,611. DUNLOP PNEUMATIC TYRE CO. AND H. J DUNN. Spare-wheel covers.
25,248. A. ROE. Wheels.
25,504. J. WELLER. Cooling I.C. engines.
25,882. W. E. CARMONT. Resilient tyres.
25,883. W. E. CARMONT. Solid resilient tyres.
26,385. G. F. DAWSON. Vaporisers.
26,583. T. H. LEWIS. Rotary engine.
28,928. G. MADDOX. Motor car bodies.

Applied for in 1912.

Published November 14th, 1912.

408. M. FRANI AND P. PIANO. Elastic road wheels.
460. A. SPEIGHT AND REGENT CARRIAGE CO. Folding hoods.
2,333. HOWES AND BURLEY, LTD. AND OTHERS. Acetylene generators.
2,870. G. CONSTANTINESCU. Vaporiser.
4,279 D. MESURE. Suspension.
6,777. H. OTTEN. I.C. engine regulation.
8,131. A. HORCH AND CIE. MOTORWAGENWERKE A.-G. Gas turbines.
9,687. E. A. FINZER. Spring wheel.
10,648. J. KYLLAINEN. Reversing gear.
10,707. C. FRANKE. Injecting fuel in I.C. engines.
10,832. L. BUQUET. Shock absorbers.
12,269. G. W. LOMAS AND J. B. WILLISON. Self-starter.
14,623. D. BOSC AND R. FALIGANT. Rotary I.C. engines.
17,809. J. WARRICK. Fans for air-cooled motors.
21,583. J. A. TORRENS. Carburettors.
21,589. J. A. TORRENS. Carburettors.

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The AUTO -MOTOR JOURNAL.

The Motorist's Journal and Directory.

No. 621. (No. 48, Vol. XVII.) NOVEMBER 30, 1912. [Weekly, Price 3d [Post Free, 3½d.



"Auto." (Yellow Cover) Copyright.

A view of the Cycle Car and Motor Cycle Show at Olympia, giving an idea of the complete transformation effected within a week.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

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Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

Educating the Children.

The Battersea coroner the other day delivered himself of some very sensible remarks, in the course of an inquiry into the circumstances attending the death of a child who had been run over by a motor 'bus. In addressing the jury, he said that there had been a great outcry against motor 'buses; but his own experience was that drivers were, as a rule, very skilful, and he often found that fatalities were due to the fault of the unfortunate pedestrians themselves. The only way he could suggest for avoiding the type of accident with which they were dealing was for parents and schoolteachers to instil into the minds of boys the great dangers of crossing the London streets; they must be made to understand this by education. Parents could not be too careful in warning their children always to look to the right before crossing the roads, and to tell them that they should always use refuges. If this was done, a great number of these accidents would not occur.

Needless to say, we entirely concur in the remarks of the coroner. In fact, we have ourselves said the same thing almost times without number. Not long ago we mentioned the fact that there were obtainable a series of excellent pictures, illustrating the dangers of the streets, which we recommended should be displayed in every elementary school in the kingdom, and that the attention of the children should be periodically called to their lessons. We are not aware of how many of the education authorities have ordered displays of these most useful object lessons in the schools under their control. We believe that at least a few have done so, but whether pictorially or by means of verbal insistence it is a duty that authorities, teachers, and parents owe to the young to bring home to their thoughtless minds that the London streets—or those of any large town for that matter—are not safe playgrounds.

The Cycle Car Show.

Olympia, which up till Saturday week had been the stage of the world's finest cars, suffered a wonderful transformation scene in a brief interval of seven days and nights, and when the doors were opened again last Monday a unique display of motor cycles and liliputian motor cars was on view. It is by this time superfluous to remark that the interest displayed in the present Show far exceeds that of previous years.

More than one reason may be given for this. There is the renaissance of the cycle car, which type of vehicle appeals not only to motor cyclists but also has much of interest for many car owners; there is the ever-increasing number of motor cyclists and prospective motor cyclists for whom "the" Show has an irresistible attraction, and there is also additional interest because of the large number of makers showing this year for the first time, each and all having something on view worth the trouble of a thorough investigation, either for novelty in detail or as complete departure from what hitherto has been regarded as standard practice. All these factors have had their influence in making the present Show not only the most successful to date, but one that bids fair seriously to challenge the popularity of the recent Motor Car Show if judged from the numbers passing the turnstiles.

The "renaissance" of the cycle car, be it noted. No doubt it will be news to many to hear that this side of motoring is not of recent growth. All that is new is the name. The old-time quadcar and tricar were the direct ancestors of the present cycle car, and although the complete chain of descent in this country may be lost, yet the lineage is traceable on the Continent down to the time when the Bedelia made its appearance here a year or two

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back, at which time the present movement had birth, and has since developed into such lusty childhood.

So far, the majority of cycle cars on the British market are more or less in the experimental stage, though there are some that have already given a good account of themselves in open competition and everyday use. But, these may be counted on the fingers of one hand. However, several firms of wide reputation are now giving their attention to the construction of cycle cars, so that it is certain the movement has come to stay, though it is not by any means equally sure that all the types of cycle cars to be seen at Olympia just now will survive the ordeal of time. The decease of the tricar and quadcar was due to over development—that is to say, they encroached on the legitimate field of the motor car proper, to their own undoing. The same danger is present now, as then; manufacturers who regard the cycle car as anything but, so to speak, a stepping-stone between the cycle and the car, will, in our opinion, sooner or later find their mistake. There may, perhaps, be room for more than one stepping-stone, but their number and scope must be strictly limited, and it is, we firmly believe, to those manufacturers who concentrate their efforts on the production of a machine having low initial cost, and, above all, light upkeep expenses as its *raison d'être*, that success will come. The motor car, as such, is the vehicle for the more ambitious class of motorist, and is likely to remain so. Without digressing into technicalities here, it should not be forgotten that weight is a vital factor in running expenses, and that low first cost is the initial attraction to the buyer. For the rest, we refer our readers to our report elsewhere.

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The R.A.C. and the Provincial Clubs.

Judging from the various reports that reach us, all does not appear to be well in the relations between the R.A.C. and its Associated Clubs, and we hear distinct mutterings of trouble to come. There seems to be a feeling abroad that the parent body is inclined to pursue a freezing-out policy with regard to its associated clubs, and some—we should say a very small minority—at least, of the latter are feeling very concerned about it all. The root of the trouble, as expressed in a recent resolution passed and circulated by the Leicestershire A.C., seems to be that the R.A.C.—or, rather, those responsible for the executive work of the General Committee—lays too much stress upon the enrolment of individual associates and not enough upon securing its new adherents through the medium of the local and provincial clubs. That alone, they say, would be bad enough, but when the Club starts to pay a commission to agents and road guides for each individual associate enrolled through their services, it is too much. If a commission is to be paid for individual associates, then why not, they claim, for each new member of the local club? Then, in some quarters, objection is made to the proposal that in order to help out the expense of the road guide scheme the provincial clubs should be asked to forego the payment of the five-shilling capitation grant made by the R.A.C. in respect of individual associates enrolled in the local club's territory. There is yet another ground of grievance, which is that the affairs of the General Committee are rapidly falling into the hands of a sort of inner cabinet, which commands a docile majority at the meetings. This last complaint may, *we* think, be dismissed at once as being entirely without foundation.

Now, let us see how much importance is to be attached to these various complaints, each in its order. First, we will take the allegation that the R.A.C. desires to freeze out the provincial clubs. The answer to that is that the General Committee is not the R.A.C. any more than the R.A.C. constitutes the General Committee. The latter is, in fact, the provincial clubs. It dictates and carries out its own policy without any let or hindrance from the R.A.C., except such influence as may be exercised by the parent club's delegates through the medium of their votes in open meeting. As the representation of each separate body is arranged on an equal basis, it is obvious that there is equal opportunity for each to voice its own views and feelings, and, provided each section is equally keen on the business of the Committee, there is no chance of things being rushed through against the wishes of the majority. If there are administrative complaints, we submit that the associated clubs have the matter in their own hands, because they hold a preponderating share of the voting power. Now, we will admit that on the face of it there does seem a little ground for alarm on the part of the associated clubs in the matter of the individual associates. The General Committee is undoubtedly striving its very hardest to obtain individual associates and—and here is where the shoe pinches the provincial foot—it is getting them. Every associate elected direct means the loss of a possible member to the local club, so the alarm of the latter is to a great extent resting on a solid basis of unpleasant fact. There are two salient facts which the provincial clubs have got to face. They themselves have voted for the institution of a very expensive form of service—the road guides and the "Get you Home" scheme. If these are to be really useful, they must be paid for, and it is perfectly obvious even to the individual who knows least about the business side of a motoring organisation, that they cannot be maintained on a contribution amounting to five shillings per head of the membership, unless possibly that membership should run into hundreds of thousands. The money must come from somewhere, and if not from the clubs, then from the individual associates, the whole of whose subscriptions pass direct into the coffers of the General Committee. To that the clubs must open their eyes, and either they must seek ways and means for financing the affair themselves, or they must refrain from the pursuit of a dog-in-the-manger policy, which will ultimately benefit neither themselves nor the central body. By their votes in the committee they have pronounced both these new services to be good and desirable things, and they cannot have the good things of this life without paying for them.

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Next comes the question of the payment of commissions to repairers and road guides for the introduction of individual associates. For our own part, though we cannot say that it seems quite dignified, at the same time we cannot see anything in it which is vitally objectionable. It is not pretended that there are any of the elements of a social club in the organisation of the associate scheme. If there were, we should at once say that the payment of introductory commissions was absolutely damnatory. But the whole thing is simply and solely a matter of business. On the one hand we have the motorist who, purely as a matter of business as we say, thinks it is worth his while to pay a guinea a year to obtain the services of a certain organisation, while the latter is anxious for its own sake to sell him those services. Therefore, it employs a "traveller" to make known the extent and scope of its activities and to convince the potential purchaser that it is worth his while to invest. Has it struck the malcontent section of the associated bodies that it really has a far better opportunity of working the same system than the Central Committee itself? Each associated club is working in its own territory; its executive is known to every roadside repairer on its ground, and can influence him personally to a far greater extent than can be done through business letters from London. Therefore, if they desire to increase their own membership, why should they not take a leaf out of the central organisation's book and pay commissions for the introduction of members to themselves? Doubtless the reply will be that these bodies are respectable county and local clubs, which cannot, consistently with their own dignity, do this kind of thing. Then, if that is so, the sooner they admit themselves beaten the better. The General Committee stands committed to road guides—whether the scheme is a good one may be debatable, but the fact must never be lost sight of that it is the scheme of the clubs themselves—and it has to finance that scheme. To do that it must get the class of member which provides the sinews of war. Alternatively, it is for the associated clubs to finance the scheme themselves. That is all there is to it.

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The Capitation Fees.

Certain of the clubs have made handsome donations to the funds of the Road Guides. Others have done nothing at all, nor do they seem inclined to contribute. Under the constitution of the Associated Clubs scheme, each club pays to the central committee a sum of five shillings per head of its membership, while the committee credits the associated body with a similar amount in respect of each individual associate elected within the territory of the associated body. That is a part of the association agreement, which, it must be pointed out, was agreed to before the introduction of the road guides and the "Get You Home" idea. Now, in order to assist the General Committee in financing these schemes, the clubs are asked to forego the payment of the individual associates' capitation. In justice to the clubs, it must be said that the proposal has generally been met with graceful acquiescence, but we still hear muttered complaints about a breach of the Association agreement. We should not have mentioned this matter at all, except that grievances have a habit of growing, and this one really should not exist at all. The whole thing is simply bound up in the general one of the finance of schemes which have come into being since the date of the Association agreement. In asking the clubs to forego the payment under discussion, we do not think the General Committee is making anything but a perfectly reasonable request. That, we know, is the view of most of the associated bodies.

Finally, we trust that the incipient agitation which we know to be in the air just now will be the subject of better counsels, and that it will not take overt shape. We do not want to go back to the old days of the Motor Union, with all the heartburning and internecine strife that characterised the relations between the various motoring bodies. That would be to put back the hands of the clock, and to destroy that spirit of motoring unity which we had really thought to have become almost, if not quite, an accomplished fact.

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Motor Omnibus Inquiry.

At the instance of the Home Secretary, a Select Committee of the House of Commons has been appointed to "inquire into the circumstances which have led up to the large and increasing number of fatal accidents in the metropolis, due to motor omnibuses and other forms of power-driven vehicles, and to make recommendations as to the measures to be taken to secure greater safety in the streets."

The terms of reference are wide enough to enable the committee to come to some useful sort of conclusions if it proceeds to deal with the subject in an impartial and unbiassed manner. For our own part, we have little confidence in these committees as a means of arriving at practical solutions of such subjects as the proper regulation of traffic. A mass of evidence is taken by a body whose composition is not often the best that could be imagined, and on its basis is built the fabric of a decision which is usually so wide of the mark that it is apparently pigeon-holed and forgotten. For the purpose of allaying an agitation, and assuring the public that something is really being done, the Select Committee is often a good thing in its way. And there it ends.

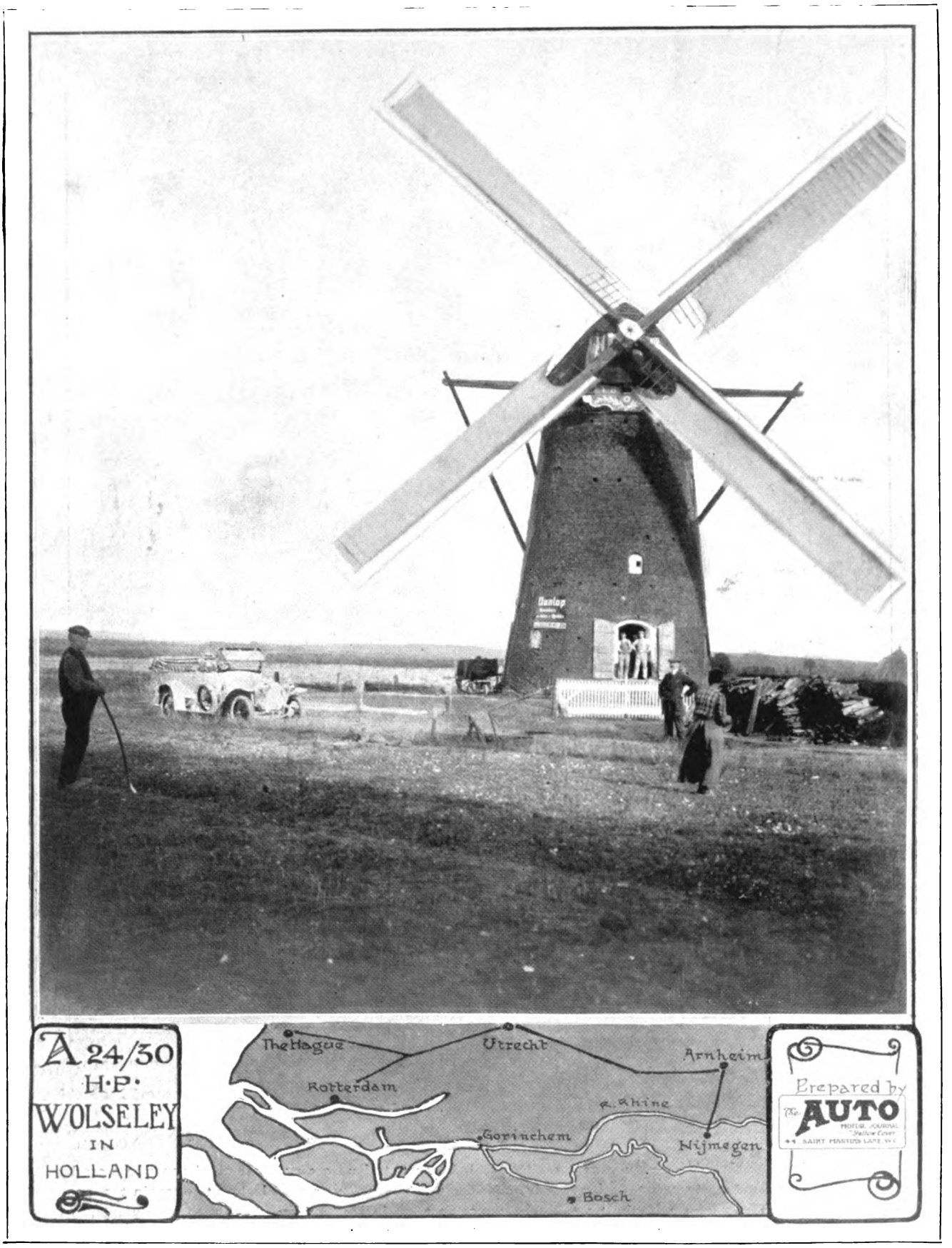
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L.C.C. and Mud-Splashing.

THE Local Government Committee of the London County Council seems to have heard of some cases of mud-splashing by motor omnibuses, but apparently does not know that the Commissioner of Police has given a lot of attention to the matter. At any rate, the Committee is considering the question of recommending the Council to make a by-law under the Municipal Corporations Act, 1882, and the Local Government Act, 1888, with a view to securing an abatement of the trouble. But, be it remembered, according to the opinion of the Police, the motor 'bus is by no means the worst offender in regard to mud-splashing.

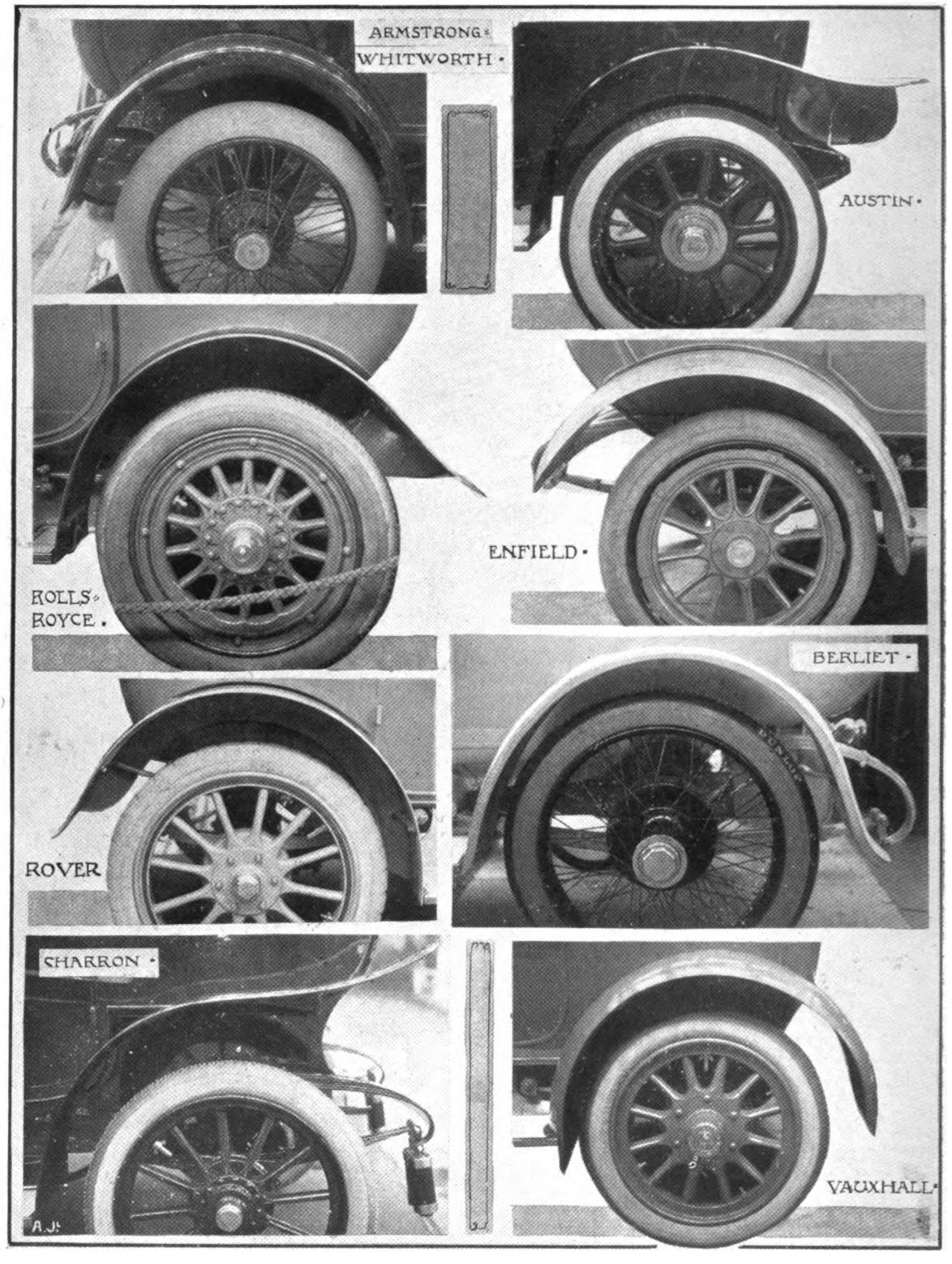
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WITH THE CAMERA AND THE CAR.



THROUGH HOLLAND WITH A 24-30-H.P. WOLSELEY.—A scene near Nijmegen.

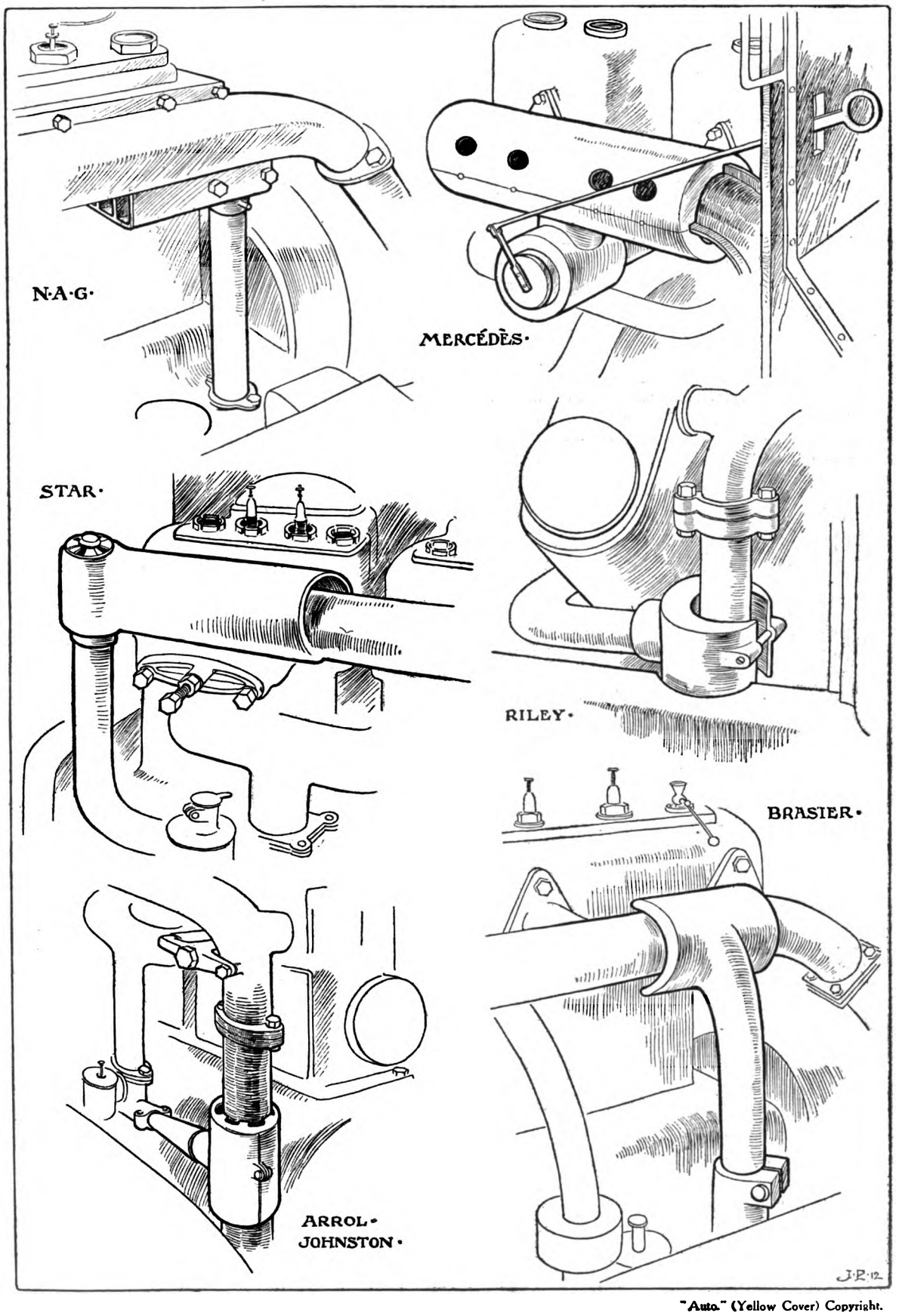
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THE WINGS OF THE CAR.—Mudguards are intended, in part, to lend a certain air of elegance to a car by the grace of their flowing lines, but, unfortunately, considerations of utility frequently imilitate against a good appearance. The above photographs illustrate, however, a comparison in rear mudguards as seen at Olympia. In some cases the springs have had to be obliterated in order to emphasise the shape.

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A COMPARISON IN AIR INTAKES.—Usually the air intake to a carburettor is arranged so that the air is warmed by the exhaust pipe. The above sketches show various fittings for doing this. In one of our recent articles a strong recommendation has been made that air intakes should be fitted with an effective strainer to keep out the dust, and we have even suggested that it might be well worth while making experiments to see if there would be any appreciable advantage from washing the air through a water spray.

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OLYMPIA MOTOR SHOW 1912

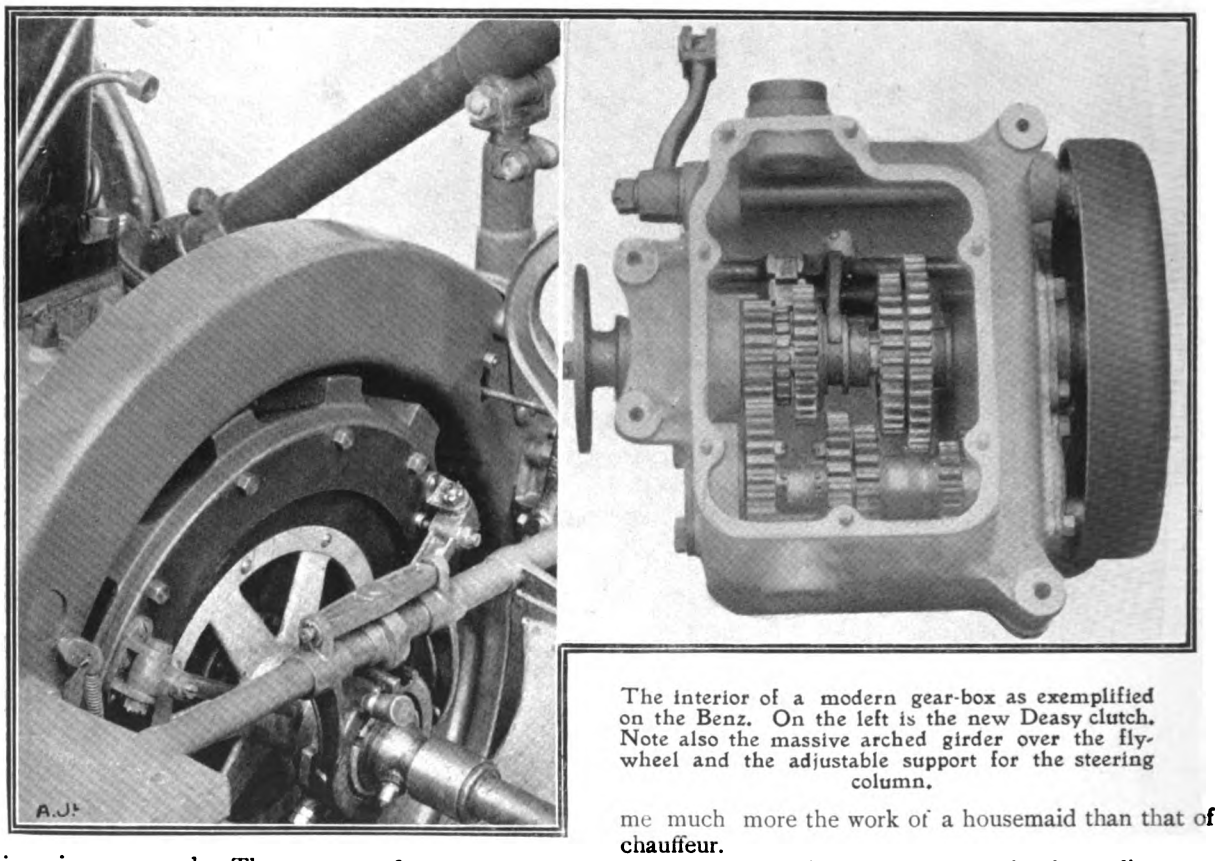


AS SEEN BY A CHAUFFEUR.

(*Concluded.*)

IF a remark I used in the introduction to my notes on the Show, to the effect that the design of motor cars generally has taken a turn from the merely technical to the practical, is true when applied to chassis construction, it can be used with even more justification in reference to the carriage work exhibited at Olympia.

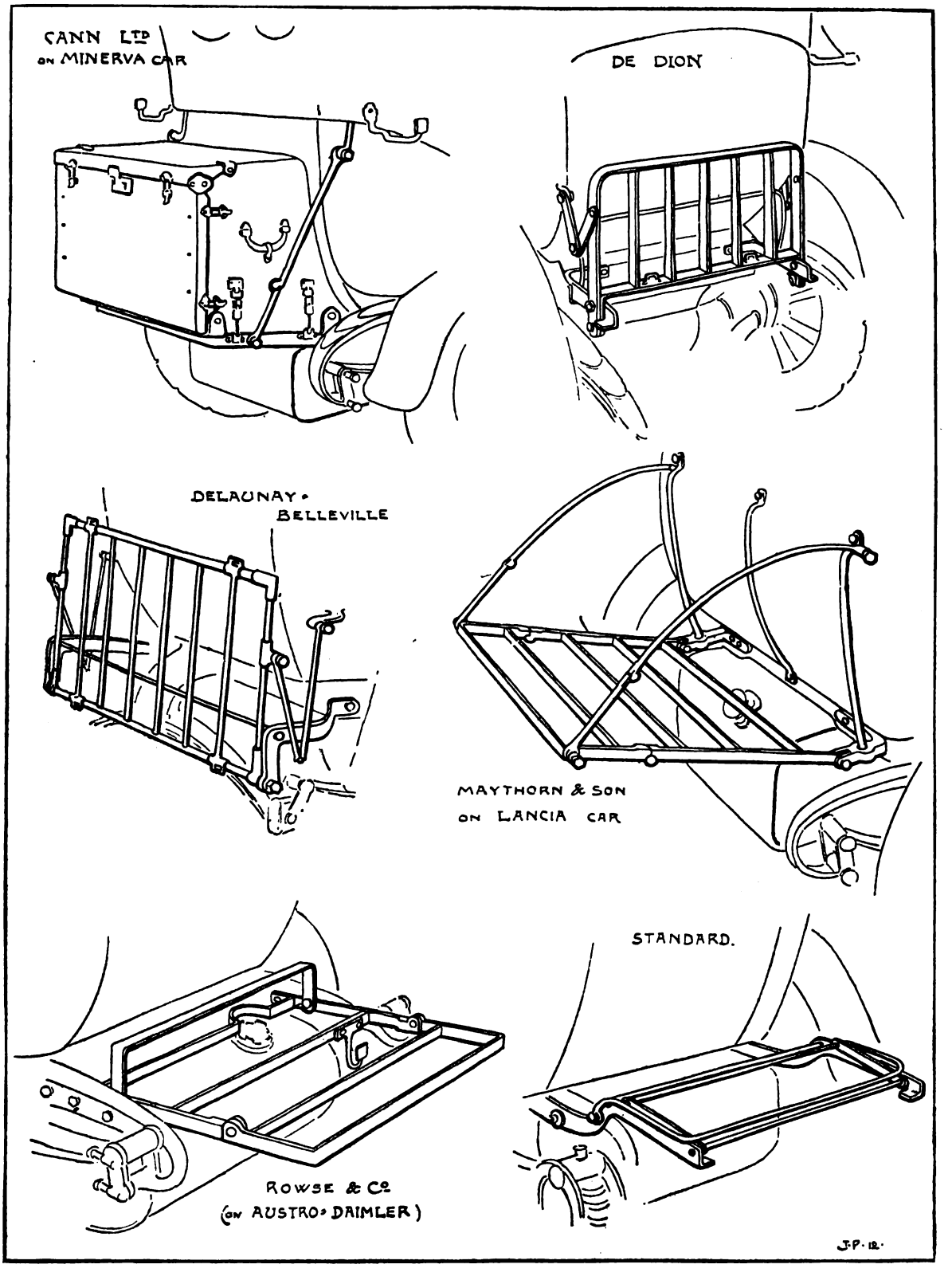
Coachbuilders seem to have realised the fact that a motor car, however extravagant and elaborate, is primarily an object to "go," and only secondarily one for "show." As a chauffeur I am more than pleased with the result of their endeavours to arrive at a satisfactory compromise between these two objects, at least, as far as the closed carriage is concerned. There were, of course, one or two carriages which were "extravagant," like the much-photographed Berline on the Gregoire stand, but they were so few in number as to be altogether negligible. I am by no means saying that these extraordinary bodies were not well built and fine to look at. It is rather the other way, and the one I just mentioned certainly represents as fine a piece of carriage work, and especially of decorative cabinet work, as you could possibly wish to see. But that's just it; it is very fine to look at, but not so fine to use. Just imagine for a moment what the interior of this magnificent carriage, with its delicate upholstery and inlaid rose-wood fittings, will look like after a day's touring on a hot summer's day. Of course the windows have been open all day long, and the dust that blows in has the pernicious habit of settling down in the most inaccessible corners. Now, if such elaborate and delicate carriage work is to be kept in good condition, it will have to be kept scrupulously clean, but to do this properly it would take two men the best part of a day, even if they have the use of a "vacuum cleaner" to get the dust out of the upholstery. Indeed, the cleaning of the inside of a good many closed carriages seems to me much more the work of a housemaid than that of a chauffeur.



The interior of a modern gear-box as exemplified on the Benz. On the left is the new Deasy clutch. Note also the massive arched girder over the fly-wheel and the adjustable support for the steering column.

However, that it is possible to make the outline as well as the interior of a closed motor carriage both beautiful and practical has amply been demonstrated by scores of landaulettes and limousines at Olympia. Indeed, the number of really fine carriages from every point of view is so great, that it is difficult to find the exceptions. I notice that leather is more frequently used as material for upholstering the inside of closed carriages than in previous years, although I have to admit that textile materials for this purpose still are in the majority. But where the latter are used, I find that the colours are less

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LUGGAGE CARRIERS ON CARS AT OLYMPIA.—The modern touring car has to accommodate luggage, and it also has to carry a spare wheel, both of which objects tend to disfigure the lines of the coachwork unless provision is made in the design beforehand, and the above sketches illustrate various schemes to this end seen at the Olympia Show.

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gaudy and less delicate, so that the car can be kept clean without much difficulty. I have always been an advocate of leather for the upholstery of closed as well as open cars, and that for good reasons. Leather is, firstly, a stouter material, it is less easily damaged or strained, therefore is cleaner in itself and easier kept in order than textile materials, where the dust often creeps right inside the strands of the cloth and no amount of brushing and beating will remove it completely. When my employer ordered his latest landaulette some eighteen months ago, he asked me for suggestions in regard to the bodywork. I recommended strongly a dark leather upholstery for the inside of the carriage, at least for the seats, the back, and the inner side of the doors. The inside of the folding roof could be upholstered in cloth to match the colour of the leather. I further said that plenty of roof-lights—one in each corner and one at least in the centre—are essential with this scheme of "inside" decoration. My suggestions seemed to appeal to my employer, but his wife had ideas of her own, which were just the opposite of my propositions; but in the end they agreed to a chocolate brown leather with cloth-lined roof, and all the fittings inside are of brown horn with just a narrow ring of silver around the lights in the roof. Leather upholstery has an advantage over cloth that should appeal to parents. My employer's children are—like most children—a very lively crowd and, in spite of the nurse, they will jump on the seats or kick the doors and other parts of the body. Good leather is not very much the worse for such treatment, and even when scratched here and there it can be restored very easily.

The limousine shown on the stand of Sheffield-Simplex, and built by Theo Masui, with its smooth and artistic outline and an upholstery that does not show stains, comes about as near my ideal of a closed motor carriage as any other shown at Olympia. Another carriage that appealed to me very much indeed was the dark slate-coloured 35–50-h.p. Fiat landaulette, the body-work of which, I am told, was built in their works at Turin. It is a magnificent piece of work, which, so to speak, keeps itself clean. Even after a long run on a rainy day this car will not look very much the worse for the experience. A somewhat similar but less elaborate car is the 24-h.p. Dennis cabriolet, in which the oxydised metal fittings form a quaint and pleasing contrast to the rather light grey of the body-work.

Indeed, the number of carriages that were at Olympia which are in every way what a chauffeur would wish them to be, is so great that it is quite impossible to mention more than a few by name. The Daimler Co. are among the few carriage builders who mount their bodywork on hinges at the rear end so that it can be raised without difficulty, and while the chauffeur proceeds with the more or less "messy" job of greasing up, the carriage work is out of the way and does not run the risk of being stained. Few people know how really difficult it is to avoid touching any part of the carriage work when greasing the chassis.

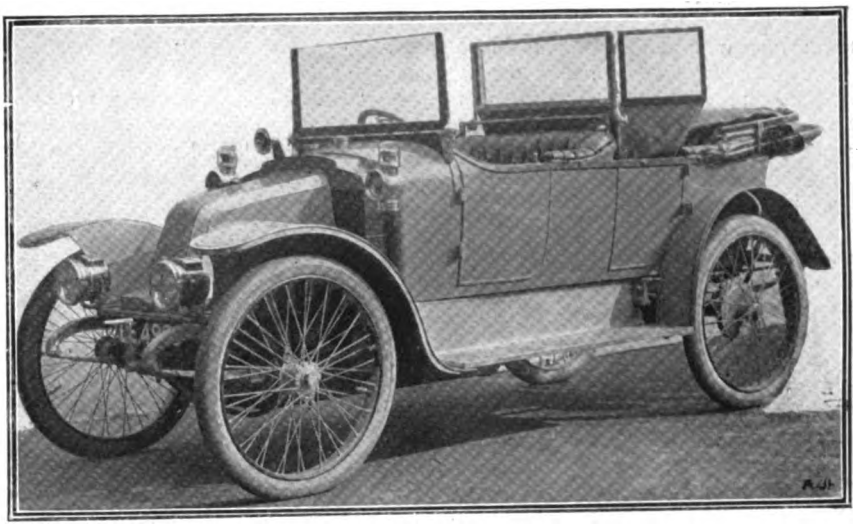
You may be ever so careful, and cover up every conceivable part, yet you have to get at some out-of-the-way grease-cup, and your greasy hand slips on what formed the support of your body in an awkward position. Of course you get hold of the first thing that will prevent you from toppling over, and more often than not it is the most delicate part of the carriage which shows the impressions of four dirty, greasy fingers, and a thumb. I believe if these incidents, which in spite of precautions are by no means infrequent, were realised more often, more provision would be made for raising the carriage work of other cars than the Daimler.

A point where there is still considerable room for improvement is the folding roof of the landaulette and cabriolet type of closed carriage. Very few carriage-builders make a real attempt at reducing the overhang of the roof when the carriage is opened, and those attempts which were shown are by no means what I should call a solution of the problem. I feel sure something better could be achieved in this direction. Even where the bodybuilder has succeeded in folding down the roof without undue overhang, I have failed to find one single instance where provision is made to fasten down the folded roof and prevent it from jumping about when the car is travelling. Some parts of a landaulet roof are heavy, and, once they start "dancing," there is an enormous strain on all the adjoining parts. Curiously enough, those who make the hinges seem to be quite aware of this fact and make them very strong, but, unfortunately, not all those who fit the hinges appreciate this strain, or else they would often use much stronger screws. Three times during the past two years has it happened to me that when going fast with an open landaulet, one of the hinges of the roof was torn out because the screws that held it were neither long enough nor of sufficient diameter. In every case I replaced them with bolts that went right through the wood and had a large washer on the other side; should these bolts ever break, they at least will not tear out part of the wood, as ordinary wood-screws do.

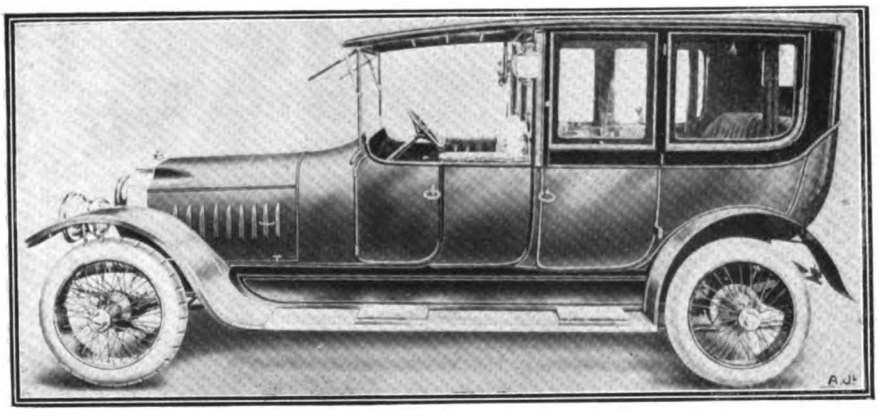
Although I found many more locks on the carriage doors than in previous years, there are still a large number of carriage builders who do not realise the necessity for such a fitting.

While undoubtedly considerable progress has been made in the design of the closed carriage, I cannot say that the open bodies seen at Olympia impressed me in a similar way. Indeed, I fear that the open touring car was treated rather badly, at least by the coachbuilders in the annexe, because there were hardly any to be seen there. Only three open cars in the annexe attracted me, and chiefly for the reason that they were so largely outnumbered by the closed carriages. There was a really fine Rolls-Royce torpedo on the stand of Messrs. Barkers, and a 15-h.p. Crossley, with a quaint, but by no means unpleasing torpedo body, painted a dark bronze, with fine blue lines. But the 18-h.p. Minerva Touring car with an open boat-shaped body, by Canns, appealed to me most of all. Not only is the outline all one could wish it to be, but the colour is a very useful grey that shows neither dust nor mud to any extent. It is very roomy without undue overhang, and every seat—including the driver's—is really comfortable. All the control levers are inside and handy, the tool boxes are placed inside the chassis under the floor boards of the rear seats, so that the running boards are relieved of a good deal of weight and present a better appearance. The only objection I had to this car was the luggage-grille behind, on which reposed a huge box containing three travelling trunks. The unfortunate part of this is, that it covers up the petrol tank, and every time you want to fill up you have to take off the big, heavy trunk, a job that I, for one, could not undertake single-handed. The stowing away of luggage on an open car always has been somewhat of a problem, and many carriage builders, after spending weeks over evolving a graceful outline for their touring bodies, could not find anything better than the unsightly grille, tacked on behind.

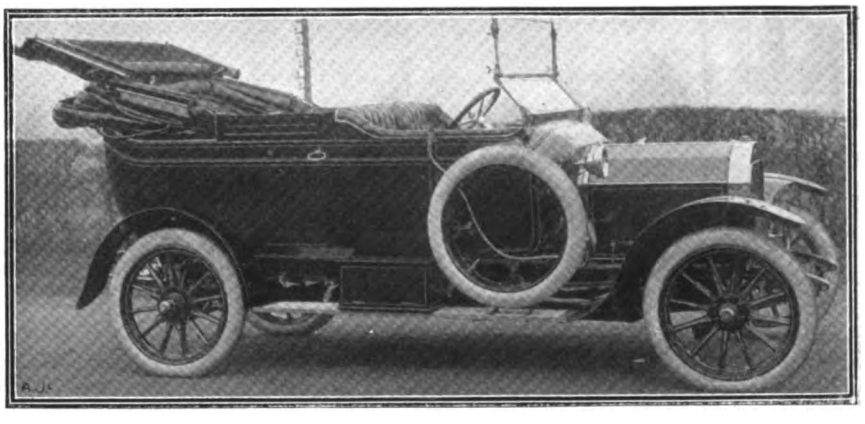
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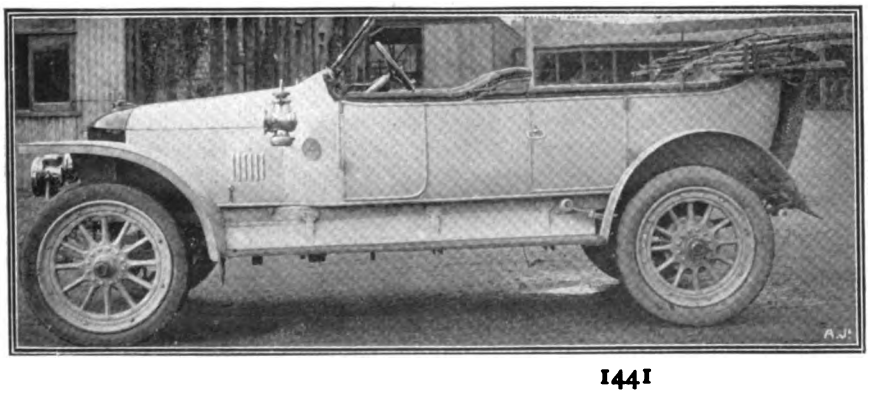
The Hurtu Colonial model on a 14-h.p. chassis, fitted with Auster back screen.



The Vauxhall Brendon Limousine on a 4-cyl. 25-h.p. chassis.



A Dennis Cabriolet on the 18-h.p. chassis, with folding wind-screen and Stepney spare wheel.



The Adams Torpedo, with pointed radiator and sloping bonnet. The spare tyre is carried at the back of the body under the hood.

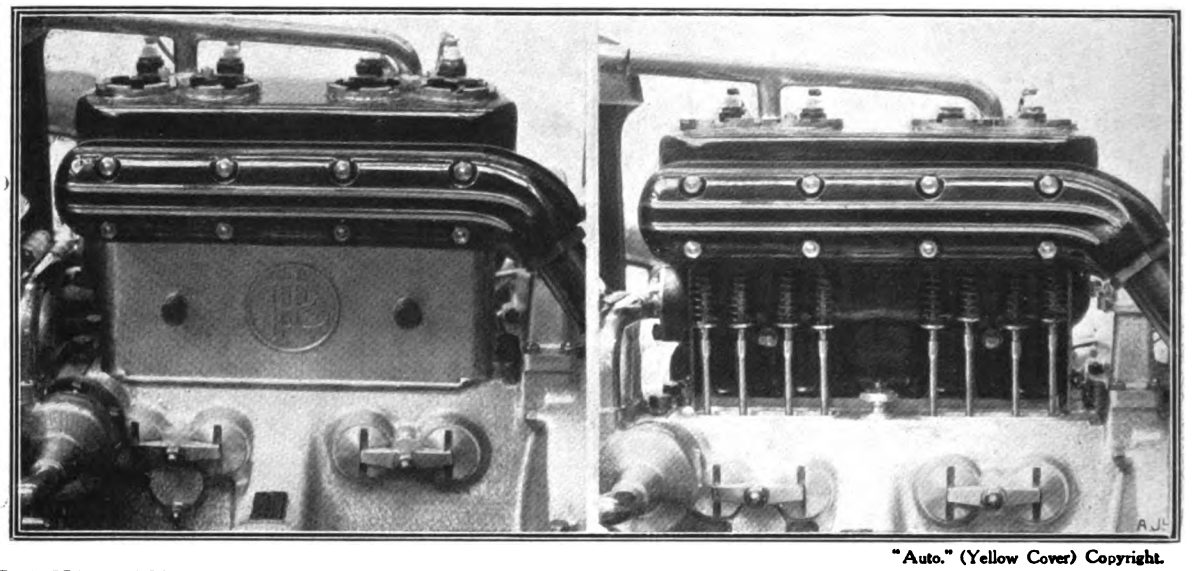
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It not only completely spoils the look of a fine car, but it makes it bumpy and increases the tendency to skidding. But the question is, where to place the luggage in a car with no roof? Well, I believe that a good deal of room could be saved in many touring cars immediately behind the front seats. If these were built with less curvature at the back, room might easily be found there for a couple of cabin trunks standing on end. A number of small trunks I have always found to be more easily stowed away than one large one. Now that most petrol tanks are either behind or on the dashboard, the space under the front seats could easily be utilised for carrying spare tubes, tyre-levers, pump and other flat tools; this would still allow a deep and sloping seat cushion to be fitted, and would even leave room for "undercutting" the back of the front seats, which would provide either additional leg room for the passengers of the rear seats or form a receptacle for umbrellas, small parcels of provisions, thermos flasks, and other articles useful or necessary on a tour.

The 20–25-h.p. N.A.G., with a torpedo body by Kellner of Berlin, is, to my mind, quite one of the finest examples of open touring coachwork to be found in the Show. The back of the front seats, in addition to a few small niches, contains the folding emergency-seats, which are quite out of the way when not used. Plenty of leg room is thereby provided for the occupants of the rear seats, as well as for those on the folding chairs. This car, too, had its hood enclosed in a wooden box, but I am wondering what the inside of this box will look like after a day's run in the rain with the hood up, when the water runs down the back of the hood and right into the "gutter."

The rear of the front seats seems to be quite a sore point with many coachbuilders and the best they can do with it is to paint and varnish it just like the outside panels. Now, that is the only thing they should *not* do, because it serves no useful purpose. Passengers are either placing their feet against the varnished surface and scratching it, or they cover it up with a more or less ugly looking hold-all, a cover that is buttoned on to the upholstery on either side and at the top, and is provided with two or more pockets meant to receive maps, shawls, rugs, and such-like articles. In most cases, however, they are used as a kind of glorified rubbish heap or waste-paper basket. To my mind the best covering for the back of the front seats is the materials used for the carpets. This harmonises with the rest of the car, and is not hurt even if you wipe your boots on it. It also eliminates noise if luggage is carried inside the car, or is thrown against the seats by the bumping of the vehicle.

Although much has been done during the past year to improve the hoods of open cars I am afraid that with one exception all the progress of facilitating its erection and the folding of it has been attained at the price of simplicity. The old two-men hoods were certainly simple and they seemed lighter than most of the one-man-hoods that are to be seen nowadays, and makers would do well to bear this in mind. The only exception, to which I referred just now, is the hood I saw fitted to one of the B.S.A. cars with the new steel body. The hood-sticks too are made of steel, hollow, light and rigid, and in its design the hood is exactly like the old two-men type. The only difference consists in the fact that the forward hoop, which supports the hood when "up" in brackets attached to the outside of the forward rests, is provided with swivel joints an inch or two above the two ends. The effect of this arrangement is, that when the hood is pushed up half way, you can pull one side of the extension forward and fasten it to its base, and then go round to the other side and do likewise. The swivel joints in the two ends of the forward hoop prevent its being twisted or snapped as would be the case if you were to attempt the same thing with an ordinary wooden hoop.



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PANHARD VALVE ACCESSIBILITY.—An example of how to arrange valve springs so that they can easily be removed.

Fastenings for the hood when folded down still leave much to be desired; leather straps are too likely to get lost, and are never easy to fasten around the hood-sticks. I should strongly advise carriage builders to take a leaf out of their American competitors' books. There is no harm in copying a good thing, even if it does come from America. Do not American manufacturers even advertise the fact that their cars represent the latest European practice?

Another point which may well receive a little more attention from the carriage builder is the position of tool-boxes. It is the easiest thing in the world to make a mahogany

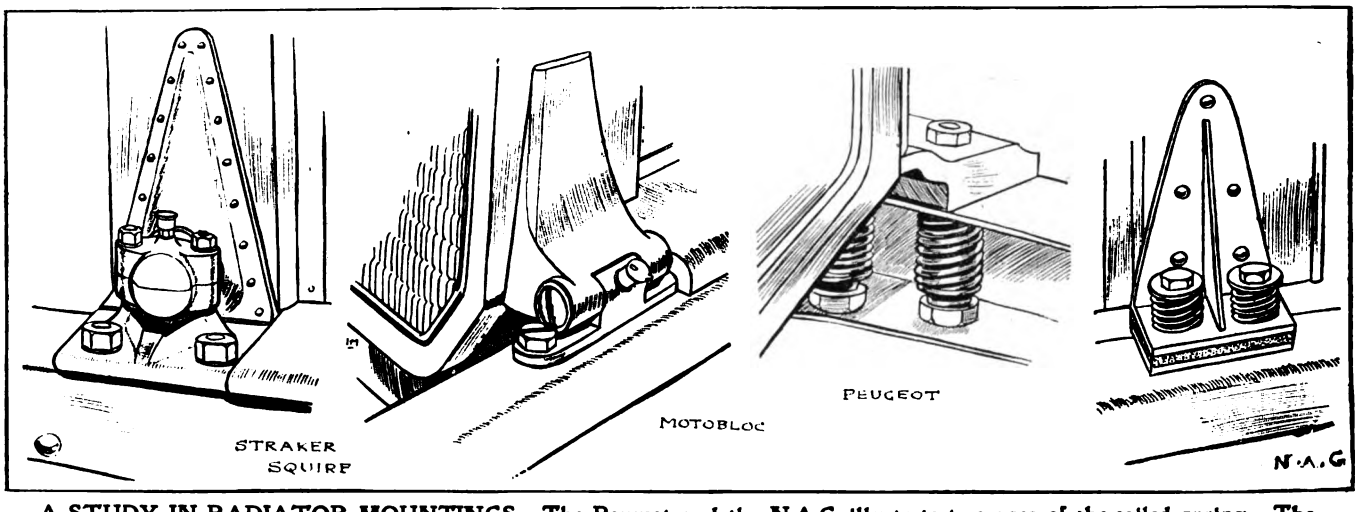
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tool-box, "stick" it on the running board, varnish it nicely, and call it an ornament. It rarely, if ever, is an ornament, and the running board should be kept free for those things which it is not advisable to carry inside the body panel, like the acetylene generator, spare petrol tin, and possibly the spare wheel or wheels. Tools are heavy, and should be carried somewhere inside the frame of the chassis. The neatest tool-box I ever saw was on the never-to-be-forgotten Rolls-Royce "Silver Ghost" where the tools were carried in trays fitting neatly into a plain box under the floor-boards of the rear seats, somewhat similar to those I saw on the above-mentioned Minerva car on Cann's stand. The Regent Carriage Co. had cast aluminium tool-boxes under the step-boards of a fine Benz limousine, but most of all I was attracted by the "sliding" tool-boxes on the steps of the limousine on the Lanchester stand. Owing to the peculiar design of the Lanchester chassis these boxes almost disappear under the overhang of the body over the step-boards, and can be pulled out when required. When not wanted they are quite out of the way and are yet very handy when you want to get at them.

This year I spent much less time in the gallery than at previous shows. Novelties of more or less "fancy" articles at fancy prices have less than no attraction for me. Why, I ask, are people demanding three or four times the price of well-made articles for a very inferior substitute because the substitute is intended for use on a motor car? Just look at the prices they are asking for a switch or such-like fittings. But at any electrician's shop you can buy for ninepence a good solid switch that does not shake to pieces and come off contact at every other bump of the road. Amongst the few things that interested me greatly in the gallery were the many electric lighting sets; but many of the switch-boards and the volt and ammeters they contain are not up to my requirements for solid construction. The Lodge switch-board formed the exception; it is very solid, equipped with good substantial instruments that show charge and discharge on plain large dials. It is to my mind, in every way suited for the job, a fact which cannot be said of the many other similar fittings. Makers of lighting dynamos would also do well to pay attention to the very pronounced "hum" some of their machines develop when running. It is the typical noise of a high-speed dynamo which you can hear some distance away from electric generating stations and is one of those noises which get on your nerves.

In the world of magnetos Bosch reigns supreme. There is no denying this fact, and the new waterproof type of machine which has so largely been adopted is a great blessing for the chauffeur. However, I had a good look at the other magnetos at the Show, and was much impressed by the U.H. which was shown by S. Wolf and Co. It has a very peculiar and very neat contact-breaker, is quite water- and dust-proof, and can be taken to pieces without the aid of tools.

On the stand of Messrs. Lovegrove I saw a very neat dust-cap for tyre valves, which can be put on and taken off with but one or two turns. It is split at the lower ends and after pushing it over the valve a sliding collar comes down and engages the thread of the cap with that of the valve; one or two turns are enough to tighten the cap. We all know what a nuisance it is to unscrew the dust caps, especially on wire wheels, and when you are in a hurry, and this cap should find a ready market. Like all good and new things made to be used on motor cars, its price, to my mind is prohibitive, and that is the sole reason why I did not order two or three dozen of them.



A STUDY IN RADIATOR MOUNTINGS.—The Peugeot and the N.A.G. illustrate two uses of the coiled spring. The Straker-Squire is an example of the transverse trunnion, while the Motobloc illustrates a longitudinal hinge.

I cannot conclude my notes on the Show without referring to the activity displayed by the various chauffeurs' organizations, and if all of them have been as successful with their Show campaign as the Society of which I am a member, they all have good reason to congratulate themselves. What impressed me most was not so much the number of new members enrolled, but the quality of the men. There was an amusing rivalry between the R.A.C. and N.S.C. men, and while the R.A.C. was leading during the first half of the Show by a considerable margin, at the end of the Show the N.S.C. had five more applications for membership than the Associates' Department of the great Club, much to the delight of the very energetic N.S.C. men, no less than to that of

N.S.C. 16.

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The Edinburgh Motor Show.

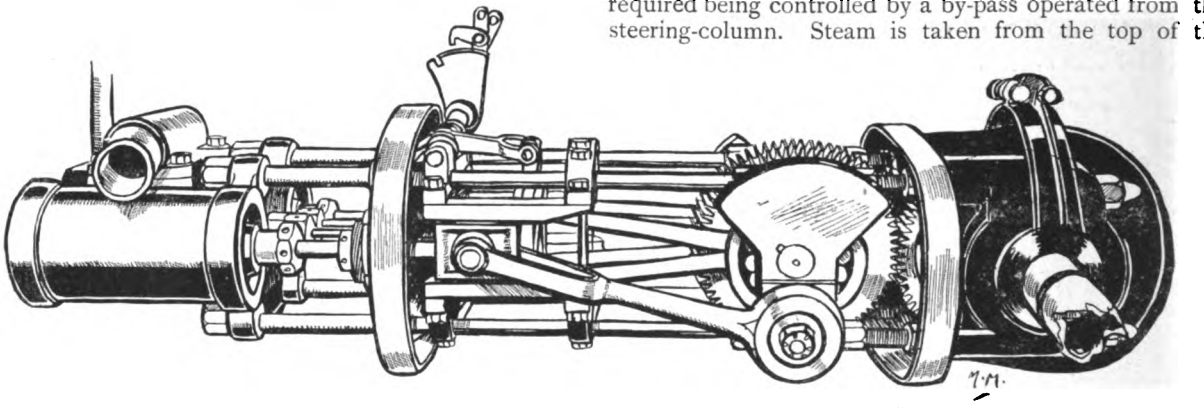
AT a ballot held the other day, the Scottish Motor Trade Association allotted all the available space in the Waverley Market, Edinburgh, for the Scottish Motor Show, which will be held from January 24th to February 1st, 1913. Altogether 93 stands have been arranged for.

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STANLEY STEAM CARS.

STANLEY cars were the sole representatives of steam-car practice at Olympia, for both the White and the Turner Companies concentrated their attention upon their petrol models. It is a remarkable fact that there are many motorists who, having a thorough understanding of the theory and practice of internal-combustion engines, have little, if any, knowledge of the steam car. This was particularly emphasised by the remarks one heard on the Stanley Stand. It is strange that this should be as it is, for, after all, the steam car—especially the Stanley—is very simple, and has several attractions.

The 1913 models of the Stanley steamers are the same in principle as those built over a dozen years ago, the only alterations being improvements to detail design and general construction. As we described this car very fully in the AUTO., commencing April 4th, 1908, it will be unnecessary for us to deal with it again at any length. We will, however, just briefly outline the Stanley system. To begin with, a "pot" boiler of the fire-tube type is employed; it consists of a thin steel shell, the walls and bottom plate being made in one piece, whilst the top plate is fixed into the shell by an electrically-welded steel ring, which is shrunk on after the plate is in position and then oxy-acetylene welded. The whole shell is bound with steel wire under tension, which adds considerably to the strength of the boiler. The 10-h.p. boiler has 473 fire tubes, giving a heating surface of 66 sq. ft., the 20-h.p. boiler has 736 tubes and a heating surface of 104 sq. ft. Besides an adjustable safety valve, blowing off at 650 lbs., there is a steam controlled automatic valve (also adjustable), which cuts out the fire when the steam pressure exceeds 500 lbs., while to prevent damage to the boiler through too low a water level, a fusible plug is fitted as well as an automatic thermostatic device. The latter shuts off the fire when the level of the water in the boiler falls below a certain point. The burner, which burns petrol or benzine, consists of a thin casting, having a series of parallel corrugations, at the tops of which are a number of fine slots. Fuel is pumped from the main tank into a small pressure tank which is connected to another similar tank, so that air in the latter is compressed (to about 120 lbs.), and thus serves as a medium for feeding the burner with a steady flow of fuel. The latter is first led to a coil of piping above the top fire-tube plate, whence it goes straight to the main vaporizing tubes, which lie across the burner-plate and the pilot flame. The vaporized fuel issues from jets situated at the mouth of two air-mixing tubes—similar to the choke-tubes of carburettors—and out through the slots in the burner-plate. Water is delivered to the boiler by means of two pumps, the amount required being controlled by a by-pass operated from the steering-column. Steam is taken from the top of the boiler and led to two super-heating coils situated over the fire, it then passes on to the engine. This, as will be seen from the accompanying sketch, is a two-cylinder horizontal double-acting locomotive type, with plain "D" slide valves. The bore and stroke of the 10-h.p. are $3\frac{1}{4}$ ins. by $4\frac{1}{4}$ ins., and that of the 20-h.p. are 4 ins. by 5 ins. Ball-bearings are fitted very extensively, and the cut-off and reverse is brought about by the usual link motion. The engine is suspended at the front end from the car-frame—it can hardly be called a chassis—by steel straps, while the crank-shaft is geared direct to the differential on the back axle. The gear ratio is about $1\frac{1}{8}$ to 1. This method of drive is the great feature of Stanley cars, and there is no doubt as to its efficiency. Little more remains to be said but that all you have to do to drive a Stanley is to open the throttle by means of a lever on the steering-column, occasionally adjust the water by-pass (as indicated by the water-level gauge), and fly up the hills!



"Auto." (Yellow Cover) Copyright.

SKETCH OF THE STANLEY STEAM ENGINE WITH CASING REMOVED.—The crank-shaft is geared direct to the back axle. It has two double-acting cylinders with slide valves.

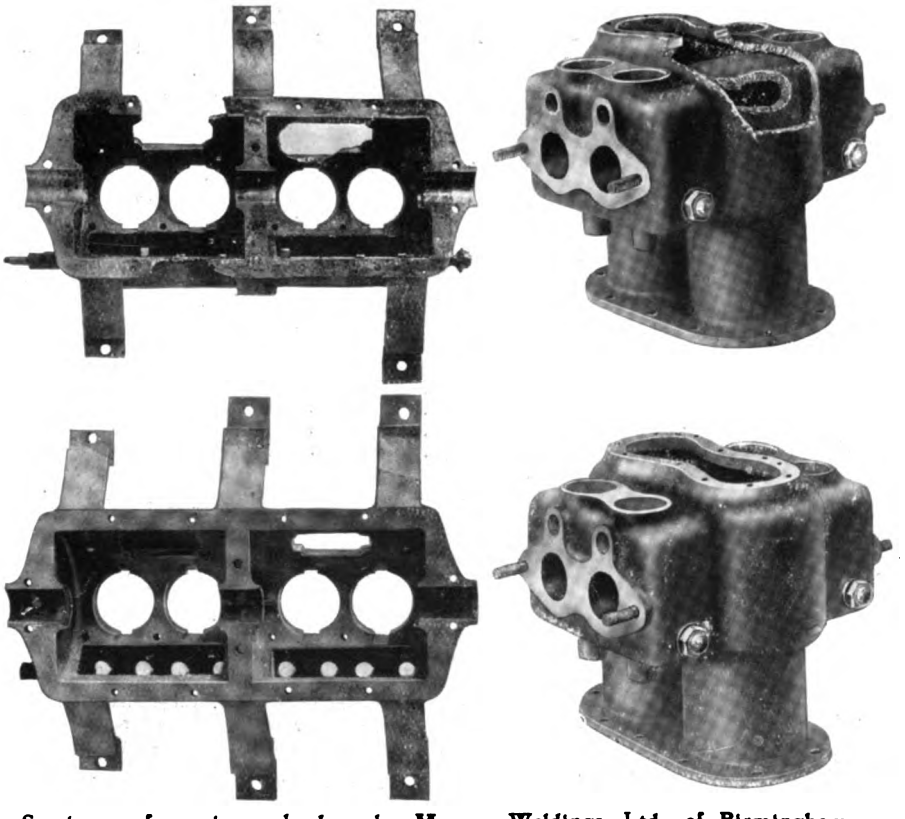
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WELDINGS WELL DONE.

AT this season of the year a warning to motorists to beware of "Jack Frost," who, as a rule, pays his first visit by surprise and unannounced, may not be out of place. But in spite of all the warnings, hundreds are caught every year, and after the first night, during which the thermometer has dropped several degrees below freezing point, there is sure to be a demand for "spare parts" in the shape of cylinder castings. But in these days of monobloc engines a new casting is an expensive luxury, and in nearly every case of damage to castings by frost the cracked cylinder or jacket could be repaired and be made as good as new if we only knew of a firm of engineers who not only undertake this kind of work, but who do it quickly and well, and withal at a reasonable price. Such a firm are Weldings, Ltd., whose head offices and works are at Lionel Street, Birmingham, and who, for the convenience of their numerous clients in and around Manchester, have recently opened branch works at 235, Great Ancoats Street in that city.

During a visit to the Midlands a short time ago we had an opportunity of inspecting some of the work turned out by this firm of welding specialists, and

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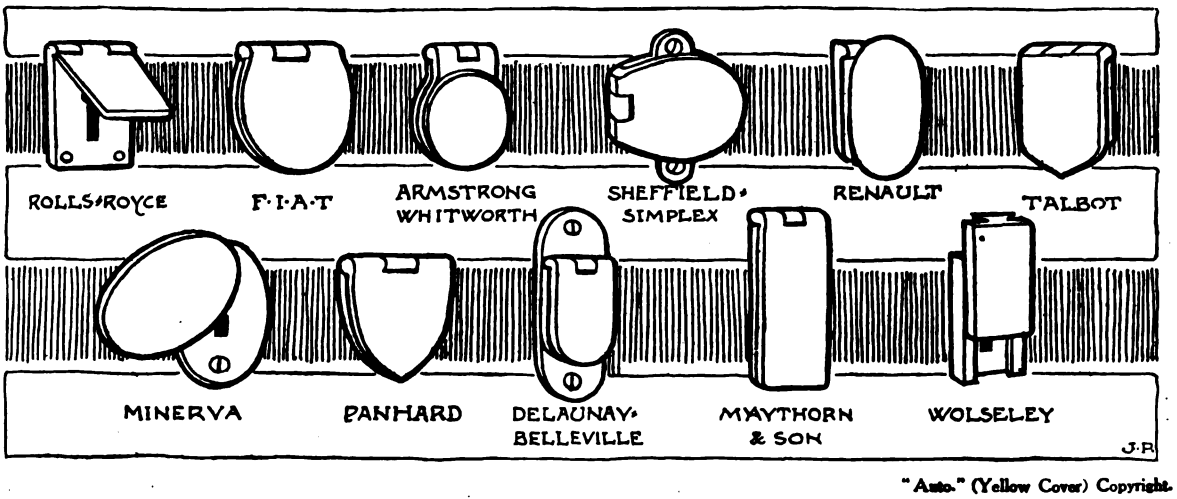
Specimen of repair work done by Messrs. Weldings, Ltd., of Birmingham.—Damaged crank-case and broken cylinder casting before and after the repair.

although we are quite aware of the many-sided usefulness of the oxy-acetylene blow-pipe, we were certainly surprised at the almost endless variety of repair work turned out by the firm. Although their work is not confined to motor repairs, they have for some time made a speciality of repairing broken parts of automobiles, such as broken castings of iron or aluminium, as well as shafts and gear wheels. The last-mentioned kind of repair work, we feel sure, should appeal especially to the owners of foreign cars, or of cars of an out-of-date type where spare parts are either unobtainable or can be procured only with difficulty and after considerable delay. While at the works we were shown a bevel-pinion and crown-wheel which had been sent in minus several teeth, and so well had the new teeth been put in that after a very close inspection only, and not without the aid of a magnifying glass, could we tell which teeth were old and which new. We also inspected a number of broken gear-shafts that had been welded, crank-shafts that had been broken and repaired successfully, and a very large variety of welding and grinding work.

Being quite aware of the fact that different jobs require different treatment, Messrs. Weldings, Ltd., do not confine their work to one method of welding, but their installation includes the oxy-acetylene blow-pipe as well as electrical welding apparatus, and a third method which, at present at least, is the firm's own secret.

Our illustrations show two specimens of the firm's work before and after treatment. One of these illustrates a cracked cylinder-dome; in this case the water-jacket had to be broken away as shown in the picture in order to get at the damaged part of the cylinder, while the illustration below shows the same casting after the repair. The other photos represent an aluminium crank-case that had been badly battered about by a connecting-rod which had snapped owing to the seizure of the big-end. After a visit to Messrs. Weldings' works, the damaged casting was sent back to all intents and purposes as good as new, thus avoiding the considerable expense of a new base-chamber casting at a comparatively small cost.

Another kind of work in which the firm specialise is the re-boreing of cylinders and the fitting of new pistons and rings, by which means a new lease of life is often assured to an old and otherwise worn-out engine.



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DOOR LOCKS FROM THE OLYMPIA SHOW.—We have already illustrated a selection of modern door handles, and we follow up the idea with the above sketches of modern key-hole covers, which are in the nature of small metal escutcheons. It is in these minor details that a car often has an otherwise good appearance spoiled.

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CORRESPONDENCE.

Induction Pipes and Slow Revolutions.

SIR,—On looking round the recent Olympia Show one notices that there is a considerable difference of opinion amongst good manufacturers as to whether the induction pipe from the carburettor to the inlet valve ports should remain entirely outside the cylinders until it joins the induction ports or whether it should go right through the cylinders themselves, forming as it were an opening through the cylinders.

A great number of firms with good reputations use one method and some another, but one thing I did notice was that one particular method of fitting seemed to me to be almost always used by those firms who have very good carburation at low speeds and when the car is standing, and I think it would be very interesting to find out if other people have noticed the same thing, and if some of your readers would give their experience of the method by which the mixture is fed into their cylinders and whether their particular type of car is one that has good carburation at slow speeds and when standing. It would be desirable to give the exact number of revs. of their engine when referring to running slowly, and also keeping in mind that this test wants to be carried out when the engine is thoroughly hot after having run for at least half an hour. I think the matter is one that requires some evidence from private users. I have not seen it commented on anywhere but I believe there is more in the matter than is at present appreciated.

Ditchling, Sussex. S. F. EDGE.

The Unofficial Tyre Test.

SIR,—The situation will be most interesting should Lord Exmouth use Victor tyres when racing at Brooklands next season. Lord Exmouth, is, I understand, a member not only of the R.A.C., but of Brooklands, and as the Club and the Trade Society have barred Victor tyres from all competitions, and will not allow any cars fitted with these tyres to race, will Mr. J. W. Orde inform us whether Lord Exmouth would be compelled to undergo the indignity of having to take off Victor tyres, which I notice he states he has been using while on the track this year, or failing this, not be allowed to contest?

I notice Mr. W. Yarworth Jones is barred too. It is not made clear from this letter what Mr. Jones is barred from, or what he personally has done to bring about his personal excommunication. Perhaps Lord Exmouth would inform us whether it is his intention to accept the edict of the Club, or whether he will continue to fit Victor tyres to his racing car for his next contest at Brooklands.

Claygate. J. H. HARRISON HOGGE, Colonel.

SIR,—I am glad to see that Mr. Jones has had enough of the correspondence *re* the tyre trial. I do not altogether wonder at it.

His accusations of misstatements on my part are not very serious, and I see no reason to withdraw my objections to the trial; more particularly as one of my chief ones is that which caused the R.A.C. to give up the idea of holding that trial.

Mr. Jones reiterates that he has given me "a full and complete answer," but this time adds "to the material and some of the immaterial points of his first letter." I should have thought that the existence or otherwise of stockists and the country of manufacture of the tyre were material.

Mr. Jones seeks to throw mud at me because I write under a *nom de plume*, but I'm afraid I am quite impenitent on that score. As for the original address I gave, that is, as you know, my postal address, and there has not been the least falsification of it.

I have therefore no more to say to Mr. Jones save that I (and there are very many private motorists who agree with me) am more than ever convinced that this much advertised trial is of absolutely no value as a criterion of tyre quality.

WILLIAM GEORGE.

SIR,—I have intimated that if the A.A and M.U. who were invited to make a comparative test of the steel-studded Victor, 920 by 120, which has emerged victor in the first round of trial, would not give a report for publication, that we would get Faraday House to make such test, which we could publish. We have now instructed the Standardising Department of Faraday House to make the following test:—

1st. Cut as required the 920 by 120 Victor s.s. cover used in Trial, after identification by Earl Norbury, who purchased it for the Committee.

2nd. Compare the number of layers of canvas in it with the following sizes of Victors, sold to the public, viz.: 820 by 120: 880 by 120; 920 by 120 and 895 by 135, and with 920 by 120 Dunlop, Michelin and Continental.

3rd. Compare thickness and strength of leather on each of the five Victor tyres, and similarly compare the quality of the studs, their size and shape, and make a chemical analysis of them in order to ascertain the quality of the steel.

4th. Compare thickness and strength of canvas in test tyre with 820 by 120, 880 by 120, and 920 by 120 Victors.

5th. Make a chemical analysis of the rubber spreading on canvas and the solution and rubber between tyre casing and leather s.s. band of the Test cover, and two Victor covers of different size sold to the public.

The Faraday House report will be published.

The cost of making these tests is very considerable, but we think they will interest your readers, so the money will be well spent.

Some time will elapse before the report will reach us, so in the meantime we publish the result of a simpler comparative test* of steel studded cover made by the AUTO. and forwarded to us over the signature of its Editor. It reads as follows:—

Dunlop, 920 mm. by 120 mm.	...	6 layers
Michelin, 920 mm. by 120 mm.	...	6 ,,
Continental, 820 mm. by 120 mm.	...	6 ,,
Victor, 895 mm. by 135 mm.	...	8 ,,
Victor, 880 mm. by 120 mm.	...	6 ,,
Victor, 920 mm. by 120 mm.	...	6 ,,
Victor, 920 mm. by 120 mm. (No. 6018)	...	6 ,,

The last named is the test cover purchased by Earl Norbury.

W. YARWORTH JONES, Managing Director,
Challenge Rubber Mills.

[* In order to avoid any misunderstanding as to the use of the word "test" in the above letter, we desire to have it very clearly understood that our own part in the matter merely consisted in counting the number of layers of fabric contained in various outer covers and pieces of outer covers brought to us for that purpose by Messrs. The Challenge Rubber Mills.—ED.]

Car Lighting Sets.

SIR,—We have read with great interest Mr. Edge's letter on the subject of motor car lighting, together with many other letters on the same subject from manufacturers anent the points Mr. Edge has raised.

As a firm who make a speciality of fitting motor car lighting sets, and have fitted many lighting sets of various kinds to various motor cars, we would like to say how very strongly in agreement with many of Mr. Edge's points we find ourselves, whilst, at the same time, considering that many of the points can be amplified.

However, as most firms seem desirous of enumerating tests, and as, apparently, most of the firms interested are enumerating tests peculiarly suited to their own systems, we propose to leave any schedule of tests severely alone, being confident that a customer who intends to buy an electric lighting set usually has established in his own mind just what he most wants. He wants:—

1. The best light to drive by. 2. A reliable system, which does not require too much attention. 3. The ability to get home in comfort and safety should his lighting set by any chance give trouble.

Now, after the experience we have had with customers, we refuse to fit systems which do not comply with the above requirements, and the only set which, to our mind, amply fulfils the above requirements is the "Magician" lighting set.

We can give an independent opinion; to prospective users of lighting sets we would say: "Please make an appointment and come and see the 'Magician' lighting set fitted up on a motor car; see how it acts on the road; ask some independent user of a 'Magician' lighting set who has had it some time if it satisfies him, and you will have the data which will be of genuine use to you."

At present there are too many lighting sets which do not give sufficient light, and which do not comply with the very essential factor, viz., that of the dynamo putting more into the battery than the lamps take out.

Finally, only in respect to the "Magician" lighting set do we find that with the dynamo deliberately put out of action—as we have put it out sometimes with a view to seeing what would happen if any trouble did occur—that the accumulators are capable of giving an excellent light, so that the user need have no fears as to getting home safely.

THE ELECTROMOBILE CO., LTD.

7, Hertford Street, W.

⊛ ⊛ ⊛ ⊛

To Educate the Public.

CONSIDERATION is being given by the Roads Improvement Association to the possibility of utilising the cinematograph for educating the general public as to how to avoid common traffic dangers, demonstrating to the authorities cases of needless traffic-congestion and danger, and generally promoting the Association's propaganda.

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

LAKE DISTRICT.—*Kendal-Keswick Road.*—The work on the new road at Ings is stopped. Boards protect the work by day and lights at night.

Keswick-Ambleside Road.—Bridge is being widened at Ambleside. Between 4th and 5th milestones re-metalling in hand half-width, roller.

LANCASHIRE.—Members are specially requested to drive carefully through Poulton le Fylde and district. Three bad holes at the Carnforth cross roads which are dangerous to motor cyclists.

YORKSHIRE.—Controls are likely to be working between Ilkley and Burley in Wharfedale and in the city of Leeds.

EAST.

LONDON-YARMOUTH ROAD.—New water main being laid through the village of Ingatestone. Re-metalling half-width on East Hill, Colchester, roller working, and re-metalling at Ardleigh. Loose metal between Hatfield Peverel and Witham, half-width.

NORWICH-CROMER ROAD.—The road is in bad condition at Aylsham, owing to heavy rains. St. Faith's Bridge is under repair.

ROYSTON-NEWMARKET ROAD.—Likely to be under water under the Railway Station at Pampisford.

CAMBRIDGE-NEWMARKET ROAD.—Roller working one mile out of Cambridge, traffic can pass, lighted at night. All roads are wet and greasy at present.

SOUTH.

BATH ROAD.—Members are advised to drive slowly through Hounslow and Colnbrook, especially between Harlington Corner and Hounslow Barracks; also through Maidenhead. Under repair between Twyford to Woodley Corner.

BRIGHTON ROAD.—Improvements in hand between Bolney Hill and Hazeldene, 14 miles from Brighton. Controls likely to be working at Burgh Heath and at Smitham Bottom. Roller between Reigate Station and the Dorking road.

LONDON DISTRICT.—On account of timing operations, special care is necessary at: Regent's Park Road, N.W.; near Church End Station, Finchley; Golders Green; between Redcliffe Gardens and the Boltons, Earl's Court Road, S.W.; Victoria Embankment; Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; Croydon; Purley; between Wimbledon and Ewell Hounslow-Staines; Hounslow-Colnbrook; Harlesden: Maida Vale; Highgate-Holloway; Lewisham; Sudbury to Harrow.

SOUTHAMPTON ROAD.—Controls working at night through Egham. Foundations being laid on the causeway between Staines Bridge and Egham.

SOUTHAMPTON DISTRICT.—Tramlines under reconstruction from the junction of Commercial Road and the London Road; also in High Street, Shirley, and Waterloo Road, Freemantle.

SURREY.—*Portsmouth Road.*—Repairing full width of road in West Street, Farnham, for about 600 yds. Flashlight controls likely to be working between Kingston and Esher.

EASTBOURNE ROAD.—Special care is advisable, as a control is likely to be working near Kenley Police Station and the Gas Works, Whyteleafe.

SUSSEX.—Members are requested to observe the 10-mile limit at Uckfield.

WEST.

GLOUCESTER, CHELTENHAM, AND OXFORD ROAD.—3 miles from Cheltenham re-metalling whole width; roller in operation.

Andoversford.—Bridge here is being rebuilt; half-width closed to traffic, caution is necessary at night, protected by lights.

SHREWSBURY.—*Hereford Road.*—Re-metalling full width of road at Bayston Hill.

Torquay-Plymouth Road.—Under repair ½ mile west of Torquay, full width. Care necessary down hill by the Grand Hotel, Torquay.

MIDLANDS.

COVENTRY ROAD.—Under repair 3 miles north of Dunchurch, half-width. Under repair at Willoughby 4 miles north of Daventry, half-width. Roller at work between 28th and 29th milestones through Markyate. New foundations being laid between the 38th and 39th milestones and between the 40th and 41st, half-width, lights at night. Tarring at Sheldon, 6 miles from Birmingham. Roller working at Moulders Bridge, Kenilworth Road, full width, clear at night. Special care is necessary at Hockliffe Hill between the 37th and 38th milestones as road widening is in hand.



A quaint sign, which in the centuries to come may give rise to curious theories as to the size to which horses in past ages are supposed to have attained. This huge horse-shoe may be seen at Claverdon, a village near Birmingham, it being at the entrance to the village blacksmith's.

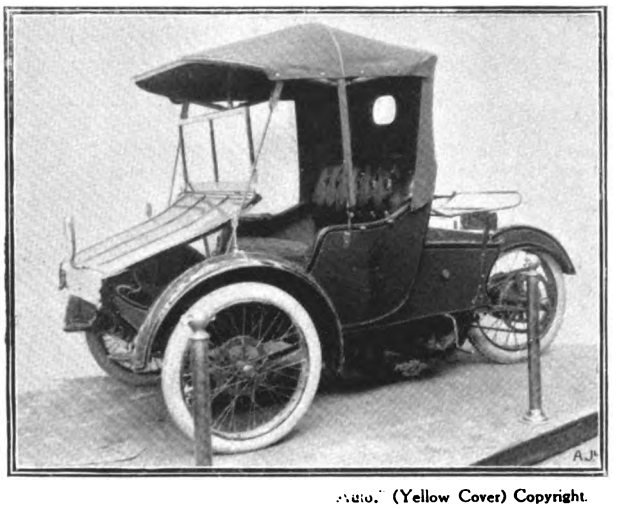
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THE MOTOR CYCLE AND CYCLE CAR SHOW AT OLYMPIA.

NATURALLY, the chief interest in the Motor Cycle and Cycle Car Show, which has followed the Motor Car Show at Olympia, lies in the presence of the cycle cars, but, as we have pointed out in a leading article this week, the display appeals to us as being more in the nature of a renaissance than in any sense as a departure into a really new field. For reasons dependent on limitations of space, we have thought fit to divide our review of the Show into two separate reports, one dealing with cycle cars exclusively, the other with the motor cycle exhibits; and, as the more interesting by reason of the novelty of these vehicles, we first publish the former, leaving the general description of the motor cycle exhibits to be treated in next week's issue.

As regards the cycle cars actually exhibited, they may be divided roughly into three classes, those constructed on motor cycle lines, those mainly following car practice, and those on the border line between the two. It is, of course, impossible to draw definite dividing lines between the different classes, and it is equally impossible in the space at our disposal to give full detailed descriptions of all the various machines in each class. The ranks of the first mentioned, however, contain the greatest number of machines that have proved themselves successful during the year, such as the A.C. Sociable, Morgan Runabout, Bedelia, and Autotrix, and it is this class of machine which will, we think, form the backbone of the true cycle car movement. Particularly do we think so when we have regard to the sporting element in "cycle car-ing" and for this reason we were pleased to notice that the class was receiving a good deal of attention, from the number of examples exhibited.

The A.C. Sociable has been on the market now for some time both as a pleasure and commercial vehicle, giving the utmost satisfaction as both. In fact, to see the number of these machines now in daily use for light carrier work in and around the metropolis is little short of astonishing, and it is no doubt by virtue of the experience thus gained that Auto Carriers, the makers, have been able to bring their machine to such a state of all round excellence in such a comparatively short time. The A.C. Sociable is a three-wheeler, with single driving wheel at the rear, a two-speed epicyclic gear being incorporated in the hub. The engine, a single-cylinder, of 95 mm. by 102 mm. bore and stroke, is situated immediately in front of the driving wheel, thus giving a very short transmission, which is by chain. Air cooling, assisted by fans, is employed, and an external fly-wheel of large diameter gives the engine a particularly smooth drive for a single-cylinder. All wheels are well sprung, the springs being of the laminated steel type and very soft in action. The makers have quite an imposing display of eight complete machines on their stand, including two commercial and six pleasure vehicles.

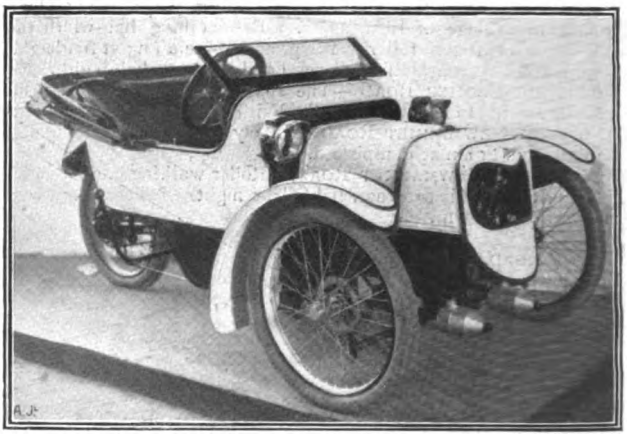


"Auto." (Yellow Cover) Copyright.

CYCLE CARS AT OLYMPIA.—The A.C. Sociable, one of the most popular cycle cars on the road, both for pleasure and business.

The cycle car that has probably met with the greatest success this year, so far as awards are concerned, is the Morgan Runabout, which has, by the way, further enhanced its reputation by securing the one hour record at Brooklands last Saturday. This machine, also, is a three-wheeler, with a single driving-wheel at rear, and is exhibited at Olympia for the third year in succession, which means that the maker must be one of the pioneers, if not the earliest, of the British manufacturers to take part in the present revival.

The engine is an 8-h.p. air-cooled V Jap, set transversely in the extreme front of the chassis, from which it can easily be removed by undoing four bolts. The frame is built up of steel tubing. Transmission is by clutch to a bevel-wheel on counter-shaft, from which the drive is transmitted to two ¾ in. Coventry chains, one on either side of the driving-wheel. Dog-clutches, operated by a side lever, throw one or other of the gears into mesh, the intermediate position giving neutral. The bodywork is of wood and sheet steel, and looks remarkably well. Passenger and driver are seated side by side. A particularly good feature is the springing, the back wheel being sprung in such manner that it is constrained to move perpendicularly to the road surface. The mudguarding is excellent, valences are fitted between the front wings and body, and the rear wheel has large side-flaps. Altogether the Morgan Runabout is an excellent little machine for serious touring, and is priced at the moderate figure of 85 guineas.



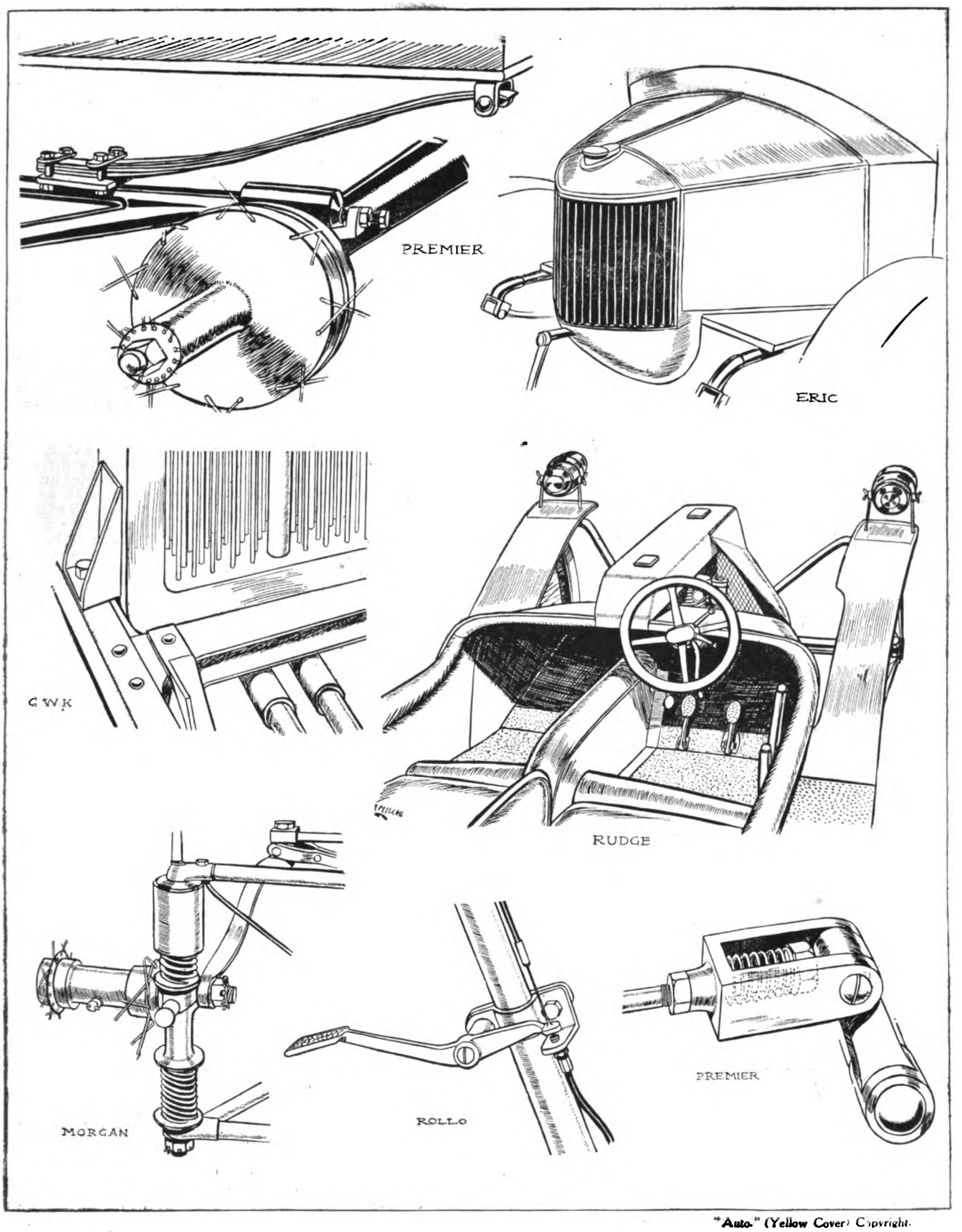
"Auto." (Yellow Cover) Copyright

CYCLE CARS AT OLYMPIA.—The Morgan Runabout, which has probably earned more awards this year than any other cycle car.

The Matchless is built on much the same lines as the two cycle cars above mentioned, but the frame is of pressed channel steel, and the final transmission is by shaft and bevels. The price is 100 guineas complete.

The Bedelia is of French origin, and to it is largely due the present activity in the movement; for we well remember the manner in which even the general press hailed its introduction into this country in 1910, as placing the joys of possession of a motor car within reach of the masses. As originally introduced, it was a low, rakish, spidery-looking mount of somewhat crude design, but of such a sporting appearance that it immediately caught the fancy of one class of motorist at least. It was built on true motor-cycle lines, but had four wheels; the passenger and driver were seated tandem, with the latter behind. Since that time many improvements have been made, and the machines at the Show, while still retaining their original racy appearance, bear every evidence of being what a cycle car should be in the matter of low prime cost and light running expenses. The prices run from 56 guineas upwards, which is the price of the 3½-h.p. single-cylinder model. All models are built on similar lines, the engine is placed in the extreme front and drives a countershaft by chain. From the countershaft the drive of the rear wheels is by ordinary V belts. A peculiarity of the drive is the method of changing gear. At either end of the countershaft two different sized pulleys are mounted; the rear axle may be moved bodily nearer or from the countershaft by a long lever, and to change gear it is necessary for the driver first to bring the axle to its foremost position, thus allowing the belts to slip over their pulleys, and then to transfer the belts to the other set of pulleys by hand. Neutral position is given by allowing the belts to run idly over the pulleys in the above manner. The idea is wonderfully simple, and accounts in a measure for the low price at which these thoroughly

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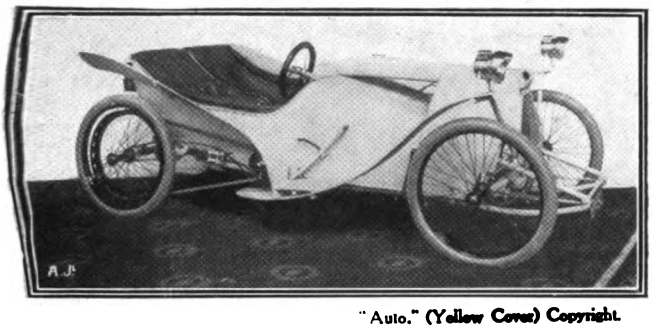
"Auto." (Yellow Cover) Copyright.

THE CYCLE CAR AND MOTOR CYCLE SHOW AT OLYMPIA.—The above sketches illustrate a few details on some of the cycle cars actually on view. The Premier simple quarter-elliptic rear spring. The radiator of the Eric cycle car. A portion of the G.W.K. radiator; the single large section tube forms part of the hot water return from the jackets. The seating accommodation and control of the Rudge cycle car. The front suspension of the Morgan runabout. The foot accelerator on the Rollo cycle car, which is interposed in the hand-controlled throttle cable. The rear brake connections on the Premier cycle car, showing how the tension of the "take off" spring is adjustable.

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satisfactory machines are sold. The weight also is low, the 8–10-h.p. standard model weighing only about 412 lbs. complete, and thus running expenses should be proportionately light.

Other machines on somewhat similar lines to the Bedelia, but of rather more ambitious character in their change speed devices, are the Rudge, the Rollo, the G.N. and the Duocar. The Rudge is quite a remarkable piece of work and differs in many ways from anything yet seen in cycle cars. The engine is an air-cooled single cylinder rated at 5–6-h.p., and has a bore and stroke of 85 × 132 mm., which gives the extremely high stroke-bore ratio of 1·5. The well-

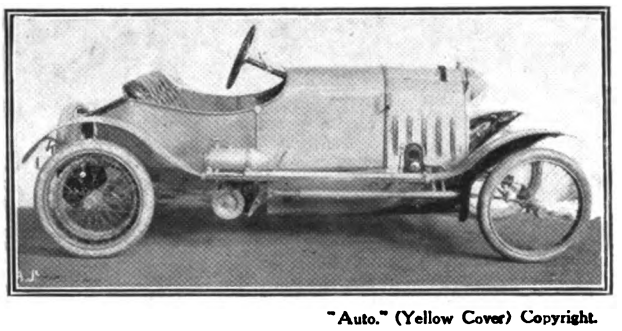


"Auto." (Yellow Cover) Copyright.

CYCLE CARS AT OLYMPIA.—The Rudge. This machine has only just made its appearance on the market, and is of an extremely interesting design. It is built in harmony with motor cycle practice throughout.

known Rudge "Multi" gear is incorporated in the design and gives the wide choice of gears of from 14 to 1 up to 3½ to 1. The machine, which is essentially of the sporting type, though affording a high degree of comfort to both driver and passenger, is priced at 135 guineas.

The G.N. resembles the Bedelia very closely in appearance as well as in many details, but the change-speed gear, which gives two speeds, is somewhat unusual, inasmuch as two countershafts are employed, one behind the other, that in front being driven by a single chain from the engine. On this shaft is a friction-clutch, and



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CYCLE CARS AT OLYMPIA.—The G.N. A cycle car of the sporting type.

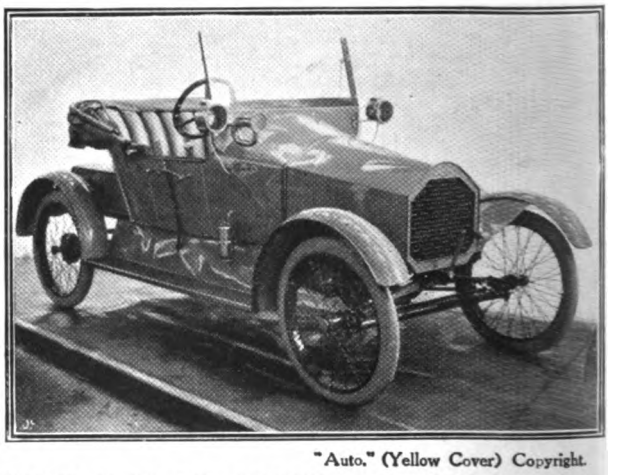
the drive is transmitted to the rear countershaft by means of one of two chains. On the rear shaft either of the two sprockets may be engaged by a sliding dog-clutch device, the other running idly, and from this shaft the final drive is continued to the back wheels by means of belts.

The Rollo is, if anything, more like the Bedelia in constructional details than is the G.N., for the front suspension, consisting of one central spiral spring, is essentially the same in both cases, though in the Rollo a bonnet serves to disguise this similarity. With regard to the transmission, which is particularly interesting and efficient, the drive is taken from the engine to a countershaft by a single large section silent chain, which is protected from road dirt by an undershield. The extremities of the countershaft carry variable pulleys and from these to the back wheels the drive is by Whittle belts. The lever operating the expanding pulleys is also arranged to simultaneously advance or retard the back axle in relation to the countershaft, thus keeping the necessary tension on the belts. The pulleys may, however, be opened for "free engine" by means of a separate pedal without disturbing the position of the back axle. The system is thoroughly effective in practice, and the method of effecting the movement of the back axle particularly ingenious. Great attention has also been paid to silence and comfort; the bodywork is well finished and the upholstery good. Side doors are fitted to both passenger's and driver's seat, the latter being in rear. This machine may, however, be had with a sociable-type body, or as a monocar. The price of the two former is £105 "all on," which includes a complete electric light equipment, and that of the monocar 70 guineas. The Rollo is eminently a "cycle car" in all respects.

The above description of the Rollo might almost apply to the Duocar, for the transmission system is essentially the same in principle, though differing somewhat in mode of application. The chain to countershaft is a Hans Renold, while the drive to rear wheels is by 1¼-in. armoured V belts. The popular 8-h.p. Jap. V twin supplies the power, and cooling is assisted by a fan blowing directly on to the exhaust ports. A large diameter external fly-wheel is fitted in addition to the standard, making vibration practically non-existent at all engine speeds. A Lukin automatic carburettor provides a correct mixture under all conditions, and is operated by an accelerator pedal, a feature which should prove acceptable. Another detail of interest is the steering, which is by three cables, independently adjustable, working on a worm, and, therefore, geared down, thus giving what is known as irreversible steering in the simplest possible manner. The Duocar has put up some fine performances at Brooklands this year, capturing records from three hours upwards on October 30th. The price is reasonable, too, being in the immediate neighbourhood of £100 for the standard model.

Then there is the Autotrix, which is of the "tricar" type. This machine was shown at the last Olympia Show, since when it has performed very creditably and has undergone several improvements. As a matter of fact, the present Autotrix bears little resemblance to its predecessor, for what then struck us as its weakest feature, the rear springing, has been entirely re-designed, and is now a really well-thought-out engineering job. It is not only in this particular, however, that changes have been made for the better, and it would be difficult to point out a more promising three-wheeler for touring purposes, especially from the point of view of comfort, in the whole of the exhibits than the Autotrix models, which are made by the firm of Edmunds, Wadden & Co., of Weybridge. Three models are made, a 6-h.p. and 8-h.p. water-cooled and an 8-h.p. air-cooled.

Closely related to the Autotrix in general appearance, though somewhat nearer the "border line," is the Eric, a three-wheeler of novel design. The engine is a water-cooled twin with horizontally opposed cylinders; it has been improved since last year's show by staggering the cylinders, which has, we are told, considerably improved the balance. The dimensions are 85 by 96 mm. and is rated at 10-h.p. The gear-box gives three speeds and reverse and is of the sliding spur wheel type, operated by gate change. The final drive is by shaft and bevels. A leather cone clutch of good



"Auto." (Yellow Cover) Copyright.

CYCLE CARS AT OLYMPIA.—The Humberette. Its price and specification, backed by the reputation of its makers, should do much to make this cycle car popular during next season.

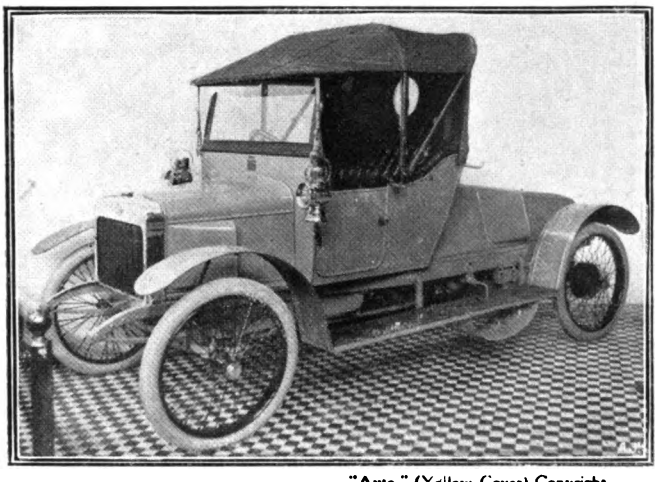
diameter is employed, and except for having three wheels and tubular steel construction, the Eric is a motor car in its essential details. The price, however, is not excessive considering the workmanship, £135 complete with hood, screen, lamps and tools.

To a somewhat different category, namely that which we have described as "on the border line," which is one, however, for which we can see a very promising future, belong the G.W.K., the L.M., Humber, Premier, Surridge "Cyclar," Day-Leeds, Chater-

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Lea, Gordon, and several others who have not yet come to the fore. This class is distinguished by having four wheels in all cases, by embodying some form of drive other than belts, and also by having some features in common with standard car practice. In external appearance they resemble the motor car in all but size.

The G.W.K. has especially shone during the season, till quite within the last few days, indeed, it held the hour's record at

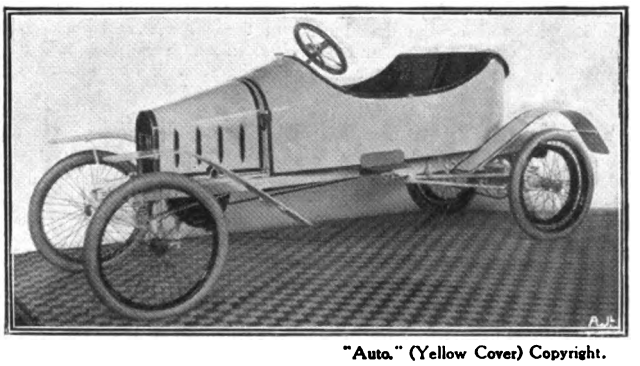


"Auto." (Yellow Cover) Copyright.

CYCLE CARS AT OLYMPIA.—The G.W.K. One of the most successful cycle cars during the past year. Its friction-drive form of transmission has given every satisfaction.

Brooklands, and has altogether proved so successful that the makers have decided on making no radical changes in design for their 1913 models. Its chief points of interest are, perhaps, its transmission system, and the position of the engine amidship, this latter causing the machine to hold the road remarkably well at speed owing to the increased proportion of weight on the back wheels. The transmission system consists of a friction drive between engine and propeller-shaft, arranged for four speeds and reverse, though intermediate speeds are also possible. The propeller-shaft has two universal joints, and the rear brakes are adjustable by hand, two features that go to show the care that has been given to the design. The back axle, which is bevel driven and contains a massive differential, has been made stronger by using a special grade of nickel-chrome steel. The rear portion of the body is detachable by the removal of two bolts, thus enabling all parts of the power plant and transmission to be readily accessible. The price of the car, with two-seater body is £135, or £150 with lamps, hood and windscreen.

The L.M. (Little Midland) is another creditable piece of work, and was one of the first cycle cars made in this country. The



"Auto." (Yellow Cover) Copyright.

CYCLE CARS AT OLYMPIA.—The L.M. A thoroughly practical little vehicle, now in its third year of life.

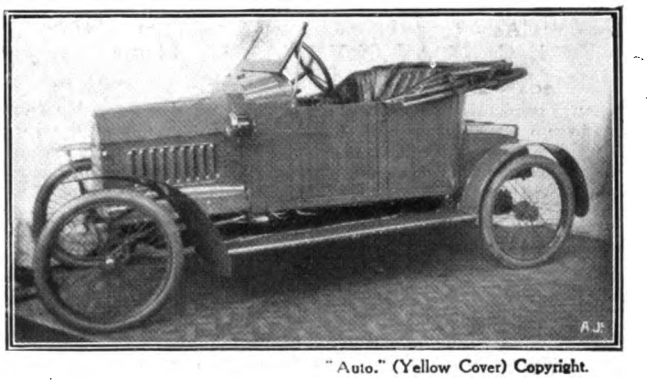
designer has kept in view the need of a practical touring vehicle rather than one built for sporting purposes, and especial regard has been paid to the matter of luggage-carrying capacity, making it an excellent little machine for such purposes as are expected by commercial travellers. One of its good points is that it can be started from the driver's seat. By concentrating all efforts on the production of one model only for the last two years, a machine remarkable for its simplicity and fewness of parts has been produced. The engine is an 8-h.p. V twin Jap, air-cooled, with Bosch magneto ignition and B. and B. carburettor. Transmission is through a metal-to-metal disc-clutch, thence by Renold chain to the gear-box, which gives two forward speeds, with the gears always in mesh and operated by substantial dog-clutches, and finally by Renold chain to live back axle, which is remarkably strong and has double radius-rods. A massive differential is incorporated in the back-axle. The weight of the machine, complete with body, is approximately 5 cwt., and the price 95 guineas.

The Day-Leeds is a machine on very much the same lines as the L.M., but has a three-speed and reverse gear-box of the sliding spur-wheel type. The final drive may be chain or belt according to choice, the differential being on the countershaft. The price, including wind-screen, hood, &c., is 110 guineas.

The "Cyclar," made by Messrs. Surridge, 58, Lomond Road, Camberwell, S.E., is somewhat unique in its simplicity; the drive is of the friction variety, arranged to give five forward speeds and reverse, and operates on the off side driving-wheel only, thus dispensing with gear-box and differential at one blow. The power plant is an 8-h.p. air-cooled Fafnir, which is a magnificent piece of work. An interesting feature that should be of the greatest practical utility is a device for enabling the passenger to place additional tension on the two disc-wheels of the friction-drive whenever necessary. By this means the normal strain on these two parts can be considerably reduced, for it is only when carrying a passenger that additional tension is likely to be required, when negotiating stiff hills for instance. As regards the Cyclar as a complete vehicle, it is an exceptionally smart looking and well-finished machine. The bodywork and finish generally would do credit to a vehicle of whatever price, the upholstery is in leather, the front wings are fitted with side splashes and the running boards are rubbered and metal bound. 760 mm. by 65 mm. Continental tyres are fitted as standard and the price with screen and lamps is £112. Only one model is made.

The Arden is another particularly interesting vehicle in the same category, for it enjoys in common with the Humberette—which was described in this journal a few weeks ago—and the Chater-Lea, the usual type of transmission common to motor cars. The Arden and Chater-Lea both have leather cone clutches, 3-speed and reverse gear-boxes, propeller-shaft to live back axle, bevels or worm in the case of the Arden and worm only to the Chater-Lea. 8-h.p. and 85 × 85 mm. air-cooled twin V cylinder engines are common to both, but the Chater-Lea may be had also with water cooling. The price of the Arden is 110 guineas for the standard model and 115 guineas for the special model with worm drive.

The Gordon is somewhat similar to the Humberette in general details, but has a multiple plate clutch and is chain-driven. A



"Auto." (Yellow Cover) Copyright.

CYCLE CARS AT OLYMPIA.—The Gordon. Not only the chassis, but the frame of the body is built up of steel tubing on this cycle car.

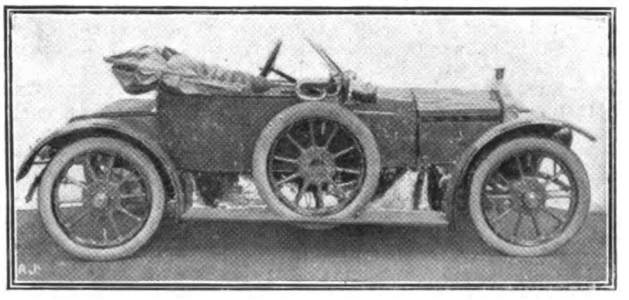
remarkable feature of this cycle car is the manner in which the bodywork is built up on a skeleton of steel tubes, which are integral with the chassis. The price is £135, but it may also be had as a four-seater at £160.

Last but not least in this class is the Premier cycle car, a smart looking two-seater vehicle with coachwork torpedo-type body at 100 guineas. The engine is an 85 by 88 mm. air-cooled Premier, specially designed with large fly-wheels for cycle car work. Ignition is by Bosch H.T. magneto driven by chain. The chassis is of tubular trussed construction and the springing is half elliptic front and quarter elliptic rear. Transmission is by chain throughout, a

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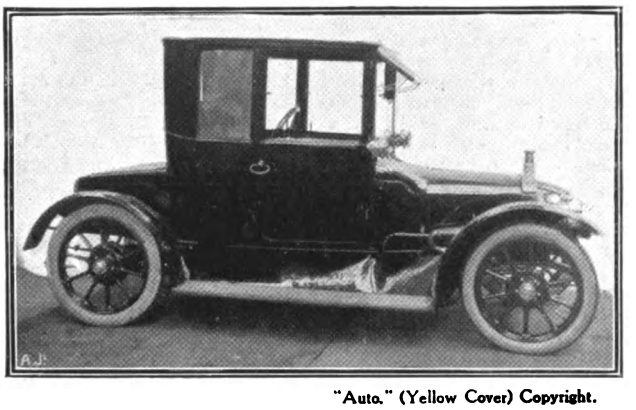
leather cone-clutch and two-speed gear-box occupying a position in the centre of the chassis. The live chain-driven back axle and differential are enclosed and are of substantial construction.

Of those machines built purely on car lines, the Singer, Swift and Perry are, we believe, the only representatives of this class at the show. The Singer is the cycle car *de luxe*, or it is a perfect 4-cylinder two-seater motor car in miniature, with the refinements of the best class of car, including automatic forced lubrication, Claudel-Hobson carburettor, enclosed type of leather cone-clutch, gate change mechanism, hand and foot throttle control, irreversible worm and sector steering, supplementary springs to the rear semi-elliptic tyre, five Sankey detachable wheels and Dunlop 700 by 80 mm. tyres, dome-shaped mud-guards and adjustable screen. The price is £185 complete with hood, screen, five lamps and all tools.



"Auto." (Yellow Cover) Copyright.

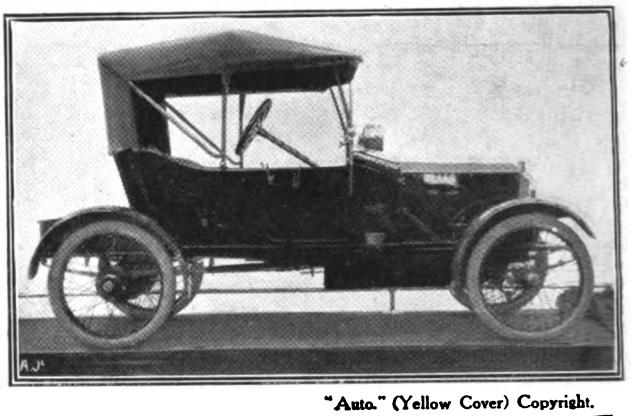
CYCLE CARS AT OLYMPIA.—The Singer—the *Cycle car de luxe*. It is a perfect specimen on a reduced scale of a high-grade genuine motor car.



"Auto." (Yellow Cover) Copyright.

CYCLE CARS AT OLYMPIA.—The Singer "Landaulette."

The Swift is a more moderate priced car, and but for the fact that it is constructed of weldless steel tubing, would also be a true motor car on a reduced scale, albeit in this case the power unit consists of a two-cylinder vertical engine. As a matter of fact, we believe the engine to be just one unit constituting the half of the actual power plant of the 13·9-h.p. Swift standard model. Bore and stroke are 75 × 110 mm., giving R.A.C. rating of approximately 7-h.p. Thermo syphon cooling is employed, lubrication is automatic is on the "bird-feed" principle. The overall length of the car is about 9 ft. 6 in., which should make the machine steady at high speeds. The gear-box, which is actuated by a gate change speed lever, gives three speeds and reverse, the sliding gears being mounted on castellated shafts. For the rest the Swift cycle car is standard car practice throughout, and therefore needs no further description here.



"Auto." (Yellow Cover) Copyright.

CYCLE CARS AT OLYMPIA.—The Swift. Except or being of tubular construction, it is a true miniature motor car.

The Perry cycle car, also, is an exact replica of a full-sized model, but is of exceptionally light weight—less than 7 cwt. as a complete car. In this case also, a twin vertical water-cooled engine is employed, to which is bolted a gear-box giving three forward speeds and reverse. A feature of the machine is the rear springing, which consists primarily of long semi-elliptic springs, each reinforced by two auxiliary coil springs. The live rear-axle is worm-driven, and possesses the somewhat uncommon distinction of a spur differential. The dimensions of the engine are 72 mm. by 108 mm., and Sankey detachable wheels and Dunlop tyres are fitted as standard. Though this machine has but just been placed on the market, we understand that it has undergone extensive trials.

We have not attempted to deal with every cycle car exhibited in the Show in the foregoing brief descriptions; we have, however, given sufficient examples in each section of our arbitrary classification to point out their leading characteristics and to show the general trend of design, if such a thing as trend is yet possible in these early days of the movement. Taken *en masse*, the exhibits would certainly seem to indicate the establishment of two distinct types of cycle car, one purely sporting, that is more or less of a fair weather mount on which the joys of *motoring* may be experienced, such as the Bedelia and Rudge machines, and the other a more serious vehicle, such as the L.M. and Surridge, in which the pleasure, or business, of *touring* by motor may be enjoyed with the minimum expense.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Important Concession to Cycle Car Owners.—Cycle car owners may join the Association for an annual subscription of 10*s.* 6*d.* By joining now, membership up to April 30th, 1914, may be obtained for a special subscription of 15*s.* 6*d.* Vehicles owned by cycle car members should, however, conform to the following conditions: The chassis weight must not exceed 800 lbs., nor the total cylinder capacity 1,100 cubic centimetres, *i.e.*, 67 cu. ins.

A Warning *re* Side Lights.—It is possible that the local authorities in certain districts may institute prosecutions against drivers of traction engines, steam rollers, also motor cars which do not carry their "off" side lights on the extreme right of their vehicles, and are thereby likely to involve cars and other vehicles in collisions. Members are earnestly requested to see that their own "off" side lamps are fixed in accordance with the Lights on Vehicles Act, 1907—on the *extreme* right of the car.

Misleading Lights on Highways.—Last week a motor cyclist member complained of the practice of youths in Swindon flashing electric pocket lamps (either red or white lights) on the wrong side of approaching motor cyclists, to lead them to believe that they were either running into a cyclist or the back of a car. As soon as the riders applied brakes, and risked a skid on the greasy road, the lights were extinguished and the culprits disappeared. The Association drew the attention of the Swindon police authorities to this dangerous practice, and has since received information that everything possible is being done to check it. Already the constables have taken six electric lamps from delinquents caught in the act.

Hidden Rails at Level Crossings.—In various districts there are level crossings owned by colliery and other companies which are often in a very neglected and dangerous condition. Several owners of such crossings have, however, upon the representations of the Association, made the necessary improvements. The latest success to be reported in this direction is in connection with a level crossing at Doulting, on the Frome main road. In this case the rails were invariably hidden from view by a covering of dust, and as no signs warned motorists, car springs were liable to serious damage. The Association is now able to report that this crossing is now in a proper state of repair, also that warning signs are erected at either end.

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, W. M. LETTS, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.

Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, presiding; Mr. A. Holmes, deputy-chairman; Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee: Messrs. Moores, Adey, Tyler, Emmerson, Holland No. 2, Shaw Withill, Rawson and Dean.

The minutes of the previous meeting were read and confirmed.

Legal Department.

Application for legal aid was made by member No. 229, for causing an obstruction; also to member No. 1087 for driving on wrong side of an obelisk. It was agreed to take the advice of the solicitor with reference to claim for expenses on behalf of member No. 776. This being the fourth member who has cause for complaint against a lady living not a hundred miles from Bray Court, it will behove members to steer clear of this particular berth if offered them through a certain firm of car manufacturers. They should, in any case, apply to the secretary for information.

The secretary reported that the summons against the member whose employer had presented his (the chauffeur's) licence to the police as his own, was dismissed. The police superintendent asked leave to withdraw the summons, and Mr. Appleton asked for costs against the police. The Bench decided not to allow costs, and the police stated their intention of summoning the owner.

A letter was read from the Nottingham and Notts Chauffeurs Association with reference to affiliation. After discussion, the committee agreed that the affiliation of the societies was desirable, and instructed the secretary to communicate the decision to the Notts Association, and submit to them a basis for affiliation.

Letters were read from Mr. Stanley Spooner, the Facility Rim Co., Mr. Wernham, the R.A.C., the English Record Co., and Mr. Randall.

Accepted for Membership.

R. E. McDermott, Ennis, Co. Clare
Ernest E. Hale, Brighton
Joseph Magrath, Glasgow
Frederick Harris, Chertsey
W. J. C. Clee, London, S.W.
Edwin T. Matthews, Nottingham
William A. Rich, Doncaster
William Reed, Wimbledon
John E. Hudnott, Wimbledon
R. J. Greenleaf, Victoria, S.W.
J. S. Stovell, Westminster, S.W.
John L. Fisher, Hornsey Rise, N.
H. H. Fletcher, Earl's Court, S.W.
Sidney Byatt, Belgravia, S.W.
William Parkinson, Pimlico, S.W.
Ashton Stephenson, Leeds
H. J. Radford, Earl's Court, S.W.
Alfred Valsler, Kensington, S.W.
John G. Warlow, Swansea
Gilbert Grenn, London, S.E.
Alfred C. Weight, Charlton, S.E.
A. Larrett, Shepherd's Bush, W.
Robert Robson, Highgate, N.
Harding T. Brickett, Esher
F. G. Payne, Camden Town
Frederick Branson, Coventry
A. Maillard, Battersea, S.W.
George A. Reid, Bayswater, W.
H. G. Healey, Enfield, N.
Sam Smith, Sutton-in-Ashfield
G. H. Kemp, Amersham Common
G. Greenfield, East Grinstead
E. H. Clayton, Hampstead, N.W.
Frank Croshier, Sevenoaks
W. J. Waller, Chelsea, S.W.
Alfred P. Blyth, Marylebone, W.
Frederick Kerr, Sunderland
A. T. Spreadbrow, Chiswick, W.
R. A. Bridges, Shepherd's Bush, W.
Charles Russell, Brighton
George Lowings, Notting Hill, W.
Thomas Ryan, Staines
Robert Mays, Chelsea, S.W.
Harry Tulley, Lancaster Gate, W.
George A. Leak, Bath
T. Morrill, Upper Norwood, S.W.
Alfred J. Whyborn, Bournemouth
F. W. Tiedt, Tooting, S.W.
William Chalmers, Dumfries
Frank Chapman, Stratford, E.
A. H. Wingrove, Chelsea, S.W.
W. F. French, Clapham, S.W.
T. H. Edwards, Earl's Court, S.W.
R. C. Polkinghorne, Chester
James Hitchcock, Willesden Green
Albert Austin, Bath
W. H. Bolton, Bournemouth
Charles Myers, Leeds
Sidney V. Lewis, Mortimer, Berks
William F. Marks, Willesden
A. E. Searles, Lambeth, S.W.
George Goate, Wanstead
Ernest Wells, Hampstead, N.W.
A. J. Cook, Shepherd's Bush, W.
Albert Allen, Hampstead, N.W.
George W. Rudley, King's Lynn
Stuart H. King, Chippenham
Ernest F. Mathis, Worplesdon
William Staples, London, N.
Ralph J. Davison, Battersea, S.W.
Henry L. Wheeler, London, S.W.
J. W. Robinson, Dunton Green
Richard G. Harris, Bristol
James W. Harrison, Pimlico, S.W.

Applications for Membership.

Henry W. G. Deeks, Gravesend
W. G. Tarr, Hampstead, N.W.
James W. Ramsey, Southsea
George Vesey, Sheffield
Herbert Filby, Bethersden
Harry Bryan, Coleshill
Arthur J. Nankivell, Horsham
Alexander Robertson, Kirkcaldy
John J. Clarke, Rathfarnham, Co. Dublin
Albert H. Harper, St. John's Wood, N.W.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed
Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.

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Box 7439.

IF this should catch the eye of the gentleman who inserted a small advertisement bearing the above box number, we should be glad if he would call at the office for the replies which have been received to his advertisement.

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Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

104.

ELECTRIC HORN AND DYNAMO LIGHTING SET.—My car is fitted with a well-known and really good dynamo lighting set, which works well and has never given me any trouble. A few weeks ago, however, I fitted an electric horn of a well-known type, and connected it up to the battery attached to the lighting set, and for the first day it worked perfectly. But in the evening, when the engine was not running, my lamps did not burn nearly so well as they used to do previously.

On looking into the matter I found that my battery was almost run down, and as such a thing had never happened before, I just for the time being took off the wires leading to the horn, because I thought I might have made a mistake in the wiring. After this the lights would revive somewhat when the car was running at a fair pace.

When I found time the day afterwards, I investigated the matter, but could not find any flaw in my wiring. I had connected one terminal of the accumulator to the horn, the other to the press-button; the remaining horn and button terminals I earthed. As this system had apparently caused the battery to run down, I wired up so as to cut out the frame connection. From the accumulator I took one wire to the horn as before and the other to the push button, while I connected the free terminal of the latter to the remaining terminal on the horn, but in spite of it the battery gave out again. For the time being I have disconnected the horn altogether and it serves now merely as a doubtful ornament, that wants polishing every morning. Since disconnecting the horn the light is as good as it ever was, which seems to indicate that something must have been amiss with the horn or its connections. When buying the horn I was careful to select one that took exactly the same voltage as that provided by the battery, so there should not be anything wrong on the score of the motor in the horn. The latter, too, worked well and made plenty of noise, even when the battery was far from being fully charged.

As I utterly failed to find a reason for this curious occurrence I should have sent the car to the makers of the electric outfit, who originally fitted it. But unfortunately we are so busy that the car cannot be spared. I have a fair knowledge of things electrical, and in this neighbourhood enjoy the reputation of knowing more about electric ignition apparatus and house-lighting sets than the average chauffeur does, and I am convinced that there is no short circuit. I should be grateful if any of your chauffeur readers who has had a similar experience will tell me how he got over the difficulty. He may be sure of the gratitude of—*F. E. Lane.*

105.

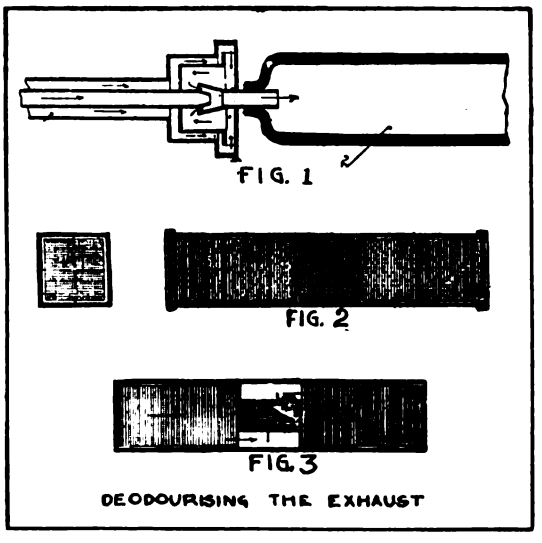
JACK AS WHEEL-DRAWER.—I really do not know whether the following well-known hint is not too old to be included in your page of "Chauffeurs' Experiences." The influx of the new and inexperienced element into our profession is so great that there must be hundreds of chauffeurs who have not the faintest notion of how to do so simple a job as taking off a wheel. And, after all, if we old hands do not help the freshmen a little now and then, we cannot complain of the reputation of chauffeurs going to the dogs. Well, to cut a long story short, while my governor was visiting some friends, I put my car into the garage that belonged to the house and found the chauffeur busily trying all sorts of tricks in his endeavour to remove a rear wheel. He wanted to get at the brakes. After trying various ways for several hours without shifting the wheel but doing considerable damage to the paint-work, he confined himself to scratching his head. He had conceived the idea that if a rope were wound round two diametrically opposed spokes and some pull exerted away from the axle, the wheel ought to come off. He had even gone so far as to actually get the rope, make a double loop, tie either end to a spoke, get himself inside the loop, and by placing a foot against the driving-shaft of the axle, tried to pull the wheel off with his shoulders. But he only got hot and tired, slipped once or twice, and the bruise on his elbow had not improved his temper. I had great difficulty to restrain my laughter when he told me all the trouble he had been through.

Of course I did the obvious, and asked him to use the jack instead of his shoulders, but he doubted very much whether the jack would accomplish what he, being a very strong fellow, had failed to do with his shoulders. Of course he forgot the enormous leverage that is provided in the screw of a jack. Anyhow he consented to a try. So I showed him how to get the loop of rope round the base of the jack and place the head against a piece of wood bearing against the axle. The wheel, indeed, was very tight, and he thought at first that my tip was not worth much, but when the rope was as tight as I dared making it without tearing out the spokes, I just got my mallet and gave the base of the jack what a friend of mine calls "a fourpenny one," which started the wheel, so that I could pull it off by hand. The whole job did not take more than three minutes. Ought I to apologise for taking up your time and (?) space with this lamentable experience? I hope I need not, it was an excellent lesson to me of the ignorance amongst novices to our trade, which, to my mind, we experienced men ought to do our best to wipe out.—*Frank Allen.*

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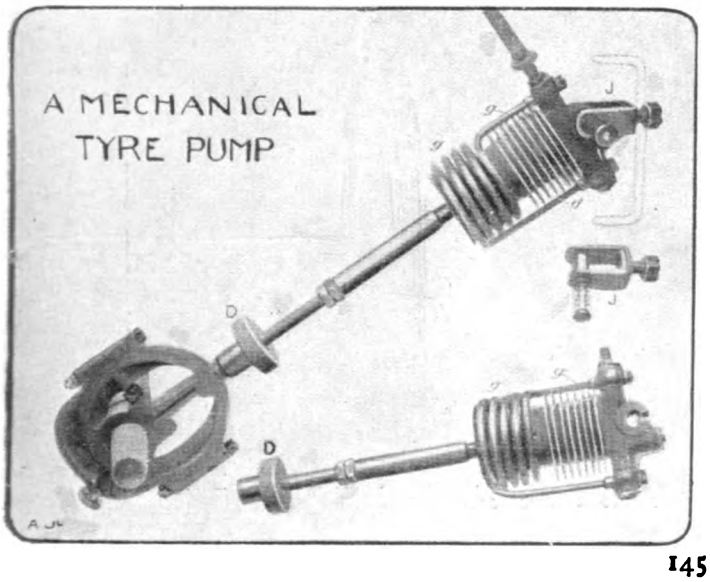
FOREIGN MISCELLANY.

Deodorising the exhaust of internal-combustion engines is a subject seemingly of less interest than it was half a dozen years ago, but we venture to think that this is but apparent. It is an undoubted fact that the exhaust of motor cars has become less *visible* than it was formerly, but the demand for maximum power is but too likely to give rise to the supply of too rich a mixture (as a considerable increase in power is thereby obtained) with its resultant incomplete combustion, and there is no need to emphasise the danger incurred from the fatal carbon

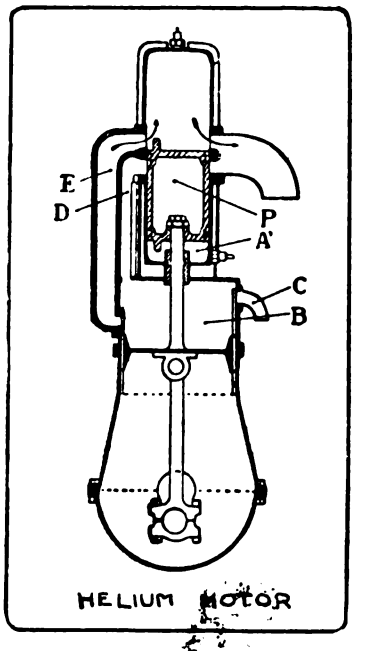


monoxide generated thereby. Though the methods available to obtain complete oxidation of the exhaust gases are not very simple yet brief mention may be made here of a device proposed by a writer in *der Motorwagen*. The method consists of passing the burnt gases through a mixture of oxide of copper, cobalt sesquioxide, and calcium plumbate. The hot gases diluted with highly heated fresh air are led into an insulated chamber, 2; Fig. 1, into which fits a cartridge (Fig. 2 and 3) composed of the materials named, the oxide of copper taking the form of discs of fine gauze, while the spaces between these are filled up with asbestos thread and the other oxides mentioned.

A mechanical tyre pump.—The driving eccentric is intended to be a fixture on the clutch shaft, but the remaining portion of the device unscrews at D and is wholly detachable; when in use it is attached to the frame by means of the clip, J, as shown in the illustration. The cylinder is air cooled by means of ribs, and the compressed air is further reduced in temperature by passing through the coiled pipe, *g*.—*Omnia*.



The Helium motor.—This is a double acting motor operating on the two-stroke principle. The upper piston, P, is the working one while the lower acts as a pump. With the pistons in the position shown in the diagram, the explosion of the charge in A^1 will drive the pistons upward, the lower one compressing a quantity of fresh mixture drawn in from the carburettor through C on the previous down stroke. When near the end of its up stroke the piston uncovers the exhaust port and shortly after the inlet from chamber, D, which causes a fresh charge to enter the cylinder expelling the remaining burnt gases. During the up stroke the pump has charged the chamber, E, at the same time as D, so that this reservoir is ready to recharge the upper end of the cylinder when the piston has descended sufficiently to uncover the upper inlet port. The proper connections with the chamber, E, the carburettor, the pump cylinder, B, &c., are effected by means of a sleeve, driven by an eccentric on the crank-shaft.—*Automobil Welt*.



How to remove tar from bodywork.—If treated in time, spots of tar from newly treated roads may be removed. In washing the car after a jaunt over such roads, do it with the hose only, avoiding rubber in order not to spread the tar. Dry by patting with a chamois, again avoiding rubbing. The spots of tar themselves can then be treated. Vaseline should be carefully rubbed into each, which will result in the major portion of the tar being easily removable. Several rubbings with vaseline, each time with a fresh portion, will finally remove all the tar. If there is a light spot left afterwards, as is sometimes the case, the application of a mixture of raw linseed oil and malt vinegar, mixed in equal parts, will remove them. Or any good body polish may be used.—*Automobile Topics*.

Repairs.—The attaining of adequate repair work throughout the country can be assisted by car makers issuing to all garages special instruction books showing the correct methods of dismounting car parts and also outlining what parts it is necessary to remove in order to dismount a certain portion, as well as noting what parts it is not necessary to remove before doing such work. Repair bills can be produced to show the vast amount of time charged up as labour for removing car parts that never should have been removed in order to repair the necessary break. This is where the car owner is taxed for the ignorance of the garageman, his help or the repairman and his help.—*Motor Age*.

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CURRENT ITEMS OF INTEREST.

Brooklands Fastest Lap.

A FACT of more than passing interest, in view of the large number of powerful cars which have been tested at the Brooklands Track, is that the average speed of the 25·6-h.p. Talbot during the second lap of its wonderful record-breaking run of Saturday week—109·43 m.p.h.—was the fastest lap ever recorded at Brooklands.

The Excelsior Records.

IN the course of his record ride of 50 miles at Brooklands the other day, Christiaens, with his 60-h.p. Excelsior, set up new records in Class H: For the half-mile, 16·62 secs.; kilometre, 20·62 secs.; mile, 33·69 secs.; and 10 laps, 15 mins. 19·8 secs. He also established the kilometre and mile record in the 60 rating class, but did not quite beat the Brasier record for the 10 laps, which stands at 16 mins. 18·213 secs. The speed for the kilometre worked out to 108·8 m.p.h.

No Encouragement from the Government.

THE brief reply, "The answer is in the negative," given by Mr. Lloyd George in the House of Commons to the question asking whether the Government would allow the sale of home-manufactured petrol and petrol substitutes free of Excise duty, with a view to securing an adequate supply, immune from liability to capture by an enemy, indicates that, at any rate at the present time, the Government is not inclined to encourage the production of home-made spirit for motor car use.

The New Cycle Car Record.

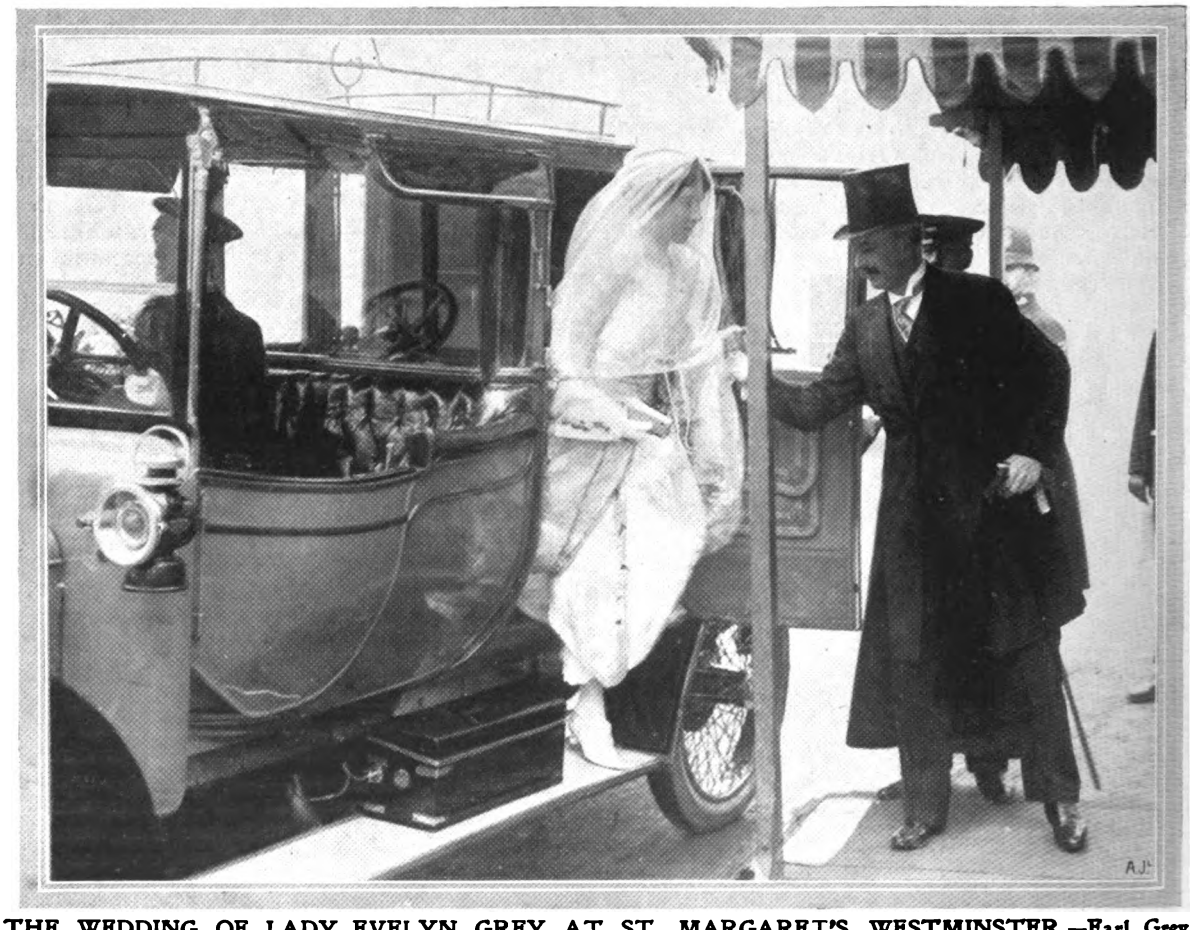
ON Saturday, at Brooklands, Mr. H. F. S. Morgan succeeded in regaining the hour cycle car record, he, on the Morgan three-wheeler, covering 59 miles 1,123 yards in that time. He also made a new 50-mile record in 50 mins. 28⅘ secs. The previous hour record was 56 miles 76 yards, made by J. T. Wood, on a G.W.K., on the previous Tuesday.

Marylebone Against the Trams.

AFTER a lengthy discussion, and hearing the views of local traders, the Marylebone Council has decided, by a large majority, to oppose the proposal of the London County Council to run a tramway down the Edgware Road to Marble Arch. In the discussion it was stated that while the L.C.C. trams have been running an additional 120,000 car-miles during the first seven months of the current year, the passengers carried have decreased by 13,000,000 and the receipts by £71,000.

New Road to Folkestone.

MOTORISTS who tour very much in the "Garden of England" will learn with approval that the Kent County Council is making a new road from Newington to Folkestone which will obviate the necessity of driving through the narrow and crowded streets of Hythe and Sandgate. The cost will be £10,000, towards which the Road Board has contributed £7,500.



THE WEDDING OF LADY EVELYN GREY AT ST. MARGARET'S, WESTMINSTER.—Earl Grey assisting his daughter out of her Rolls-Royce car.

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Dangers of London Traffic.

MR. MCKENNA, the Home Secretary, after giving his promise to appoint a Select Committee to consider the question of public safety in connection with the great increase of London's motor traffic, lost no time in announcing that the members of the committee would be Sir George Toulmin, the Earl of Kerry, Lord Alexander Thynne, Messrs. Beck, Shirley Benn, Daniel Boyle, Stephen Collins, Walter Guinness, Harris, Joynson-Hicks, Kellaway, Morison, Munro, Nolan, and W. Thorne. It is probable that Sir George Toulmin will be chairman of the committee.

The exact terms of reference proposed are:—To inquire into the circumstances which have led to the large and increasing number of fatal accidents in the metropolis due to motor omnibuses and other forms of power-driven vehicles, and to make recommendations as to the measures to be taken to secure greater safety in the streets.

Police and R.A.C. Touring Guides.

IT is indeed a sign of the times that the Chief Constable of East Sussex has offered to withdraw the police constable on point duty in Lewes and allow one of the R.A.C. Touring Guides to be posted there. Of course the offer has been accepted by the R.A.C. and Associated Clubs, and it will be interesting to watch the result of the experiment.

In several parts of the country the "Guides" are doing useful work on "point duty" at dangerous corners, a service which is appreciated by the local inhabitants as well as those using the roads.

Dazzling Headlights.

THE matter of dazzling headlights on motor cars was again raised in Parliament the other day, and it was stated on behalf of the Local Government Board that although there was no regulation at the present time prohibiting the use of dazzling lights for motor cars, some investigation of the subject is being made with a view to seeing whether it can be practically and effectively dealt with.

Suitability of London's 'Buses.

A LONG question as to the suitability of the present type of motor 'bus for service in London, from the point of view of the number of passengers and also the state of the suburban roads over which they travelled drew the following statement from Mr. McKenna, the Home Secretary, in the House of Commons on Monday:

"Time will doubtless show that the type of motor omnibus now being licensed in London is capable of improvement, but it is the best at present available, and, I believe, greatly superior to previous types. Motor omnibuses which comply with the prescribed conditions are licensed by the Commissioner of Police for the whole of the Metropolitan Police district. He has no authority to license omnibuses for particular routes only."



One of the latest motor 'buses—a 40-h.p. Daimler—which have been put into service in connection with the Halifax Corporation Tramways.

Brooklands and Provincial Clubs.

SECRETARIES of local automobile clubs are often at a loss to know what to arrange in the way of meetings for their members, and more than one has found that a carefully organised programme of events at the Brooklands track has been very much appreciated. No doubt, in view of the generous offer of the Brooklands Automobile Racing Club, to allow the use of the track free of charge to associated clubs for club meetings during next year, this example will be largely followed. The track has immense possibilities, so that enthusiastic and energetic secretaries should have no difficulty in devising any number of novel competitions, by means of which their members could display their skill and profit by the experience.

A Scottish Conviction Quashed.

LAST week, in the High Court of Justice, the Lord Justice Clerk, Lord Dundas, and Lord Guthrie quashed a conviction against Mr. James G. Connell, who had been fined £2, with the option of ten days' imprisonment, on a charge of reckless driving. The evidence of the appellant showed that the complaint gave no indication of the nature of the recklessness or any negligence, and it charged him with alternative offences. Not only did the Court quash the conviction, but they allowed the appellant ten guineas costs.

Cut-Outs on Motor Cycles.

THE Local Government Board has now issued the amended order, which will come into operation after March 31st next, by which the use of the cut-out and analogous devices is prohibited on motor cycles as well as on motor cars. For the sake of clearness we reproduce below the new regulation, which now forms paragraph 7 of Article IV of the Motor Cars (Use and Construction) Order 1904:—

"(7) He shall not use any cut-out, fitting, or other apparatus or device, which will allow the exhaust gases from the engine of the motor car to escape into the atmosphere without first passing through a silencer, expansion chamber or other contrivance, suitable and sufficient for reducing as far as may reasonably be practicable the noise which would otherwise be caused by the escape of the said gases:

"Provided that this Regulation shall apply only to a motor car propelled by an internal combustion engine."

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THE CYCLE TRADE BANQUET.

THE Third Annual Banquet of the Cycle and Motor Cycle Manufacturers and Traders Union, which was held on Friday of last week at the Waldorf Hotel, provided a fitting prelude to the Olympia Cycle and Motor Cycle Show, which opened on Monday. Mr. Arthur Brampton, President of the Union, was in the chair, and was supported by the ex-President, Mr. C. Marston, J.P., Messrs. E. Manville, R. Todd, F. Shorland, Harry Smith, C. V. Pugh, J. V. Pugh, A. Brown, J. W. Orde, Stenson Cooke. J. F. Woodfine, A. J. Wilson, &c. The toast of "The Union" was proposed by Mr. E. Manville, who drew attention to the cordial relations existing between the Union and the Society of Motor Manufacturers and Traders, and pointed out how the growth of the cycle car industry would lead to the interests of the two bodies overlapping. In his reply Mr. Brampton dwelt on the steady progress which had been made by the Union within the past year and he referred to the good work which had been accomplished. Mr. R. Todd, Chairman of the Auto-Cycle Union, proposed "Success to the Show," which was responded to by Mr. C. Vernon Pugh, who gave a few figures regarding British exports, mentioning among other things that the first ten months of this year we had exported 10,000 motor bicycles. The toast of "The Guests" was proposed by Mr. Harry Smith and responded to by Mr. J. P. Holland and Mr. R. J. Macredy.

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ROUNDABOUT NOTES.

AFTER the Olympia Show, one of the first Argyll elliptical single sleeve-valve engines built, was taken to pieces in the presence of a party of engineers. Although the car had run fully 40,000 miles it was found that not a single part of the engine required a renewal, and its whole condition demonstrated the wonderful efficacy of the sleeve-valve.

MR. JOHN WILSON, the Organi-ing Secretary of the dinner given by the Arrol-Johnston agents to Mr. T. C. Pullinger, at which Mr. J. Graham Reece, of Liverpool, took the chair, points out that in addition to the silver salver with the autographs of the agents, the presentation to Mr. Pullinger also included a handsome tea and coffee service to match.

MR. LE ROY SOHER, one of the directors of Messrs. Sidney Straker-Squire, Ltd., has resigned his position as managing director of the Pleasure Car Department, with which he has been associated since the adoption of the one model policy by the firm. Mr. L. R. L. Squire, Chairman of the Company, is giving his attention to the beauties.

DURING this week Messrs. A. W. Gamage, Ltd., have been making a special show of cycles and motor cycles. One of the novelties on view in their Holborn Showrooms is a new side-car called the Family Coach, which has an extra seat for a child by the side of the main seat. Something useful is the "spares case" for side-cars which fits under the cushion and carries spare belts, tube, valves and practically every necessary spare part.

THE new edition of the Napier book, published by Messrs. S. F. Edge, Ltd., is, like its predecessors, a very artistic production. It is all excellently arranged, and the illustrations are in colour, so that it is possible to get some idea of the appearance of the finished car. The book also includes a list—a very long one—of the successes of Napier cars, and there are also a few words on the wonderful Napier works, which, besides turning out motor cars, also manufacture the most delicate machinery for the Royal and other Mints.

A NEW catalogue is just to hand from Mr. J. A. Ryley, Martineau Street, Birmingham, which deals with the various types of K.E.W. magnetos, for which Mr. Ryley is the sole agent for Great Britain and the Colonies.

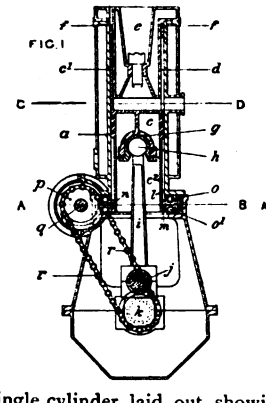
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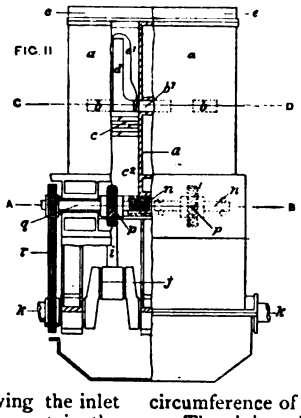
BRITISH PATENTS.

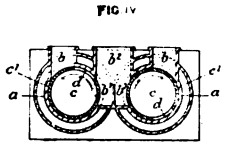
Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

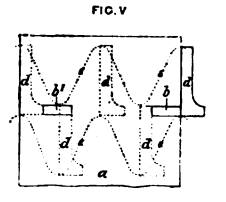
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

28,311. December 16th, 1911. Improvements in Internal Combustion Engines. Andrew Gordon, 86, Stevenson Drive, Langside, Glasgow. This invention relates to a reciprocating and rotating piston, and working parts connected therewith, the controlling the openings for the inlet of gas and for the outlet of exhaust products. Figs. 1 and 2 are sectional views in transverse planes. Fig. 4 is a sectional plan of inlet and exhaust ports on line C D of Figs. 1 and 2. Fig. 5 is a development of a single cylinder laid out showing the inlet and exhaust ports, and also the port in the piston and the line of the path it takes in the cylinder when registering with the inlet and exhaust ports, as the piston makes a four-stroke cycle and one rotation in the cylinder.









The cylinders, *a*, may be separate or cast together, and are water-jacketed; an oblong inlet port, *b*, and an oblong exhaust port, b^1, are formed in the cylinders, with a main exhaust port, b^2, common to both cylinders, as shown on Fig. 4. When cast together, for admitting gas or other explosive to the interior of the piston, *c*, through a port, *d*, and for permitting the exhaust products being ejected therefrom, a head, *e*, is secured to the end of the cylinder, *a*, forming an annular space, *f*, in which the upper end, c^1, of the piston, *c*, slides. The piston, *c*, has its upper part, c^1, in sleeve form in the side of which an oblong port, *d*, is made equal in length to the stroke of the piston, *c*, plus the height of the inlet or exhaust ports, *b*, b^1, these ports being similar. The piston, *c*, has formed in it a ball socket, *g*, into which the ball end, *h*, of the connecting rod, *i*, works, the piston, *c*, being rotated on its axis in the cylinder, *a*, as at the same time it reciprocates with the connecting rod, *i*, and imparts rotatory motion by the crank, *j*, to the crank shaft, *k*. The under or trunk end, c^2, of the piston, *c*, is elongated for a greater distance than the length of the stroke of the engine, and projections 1 slide as the piston, *c*, reciprocates in corresponding recesses, *m*, formed in the inner circumference of a surrounding pinion wheel, *n*. The pinion wheel, *n*, having ball bearings, *o*, o^1, is turned by gearing driven from the crank-shaft, *k*, having skew teeth to gear with skew wheel, *p*, on counter shaft, *q*, driven by silent chain, *r*, from the crank-shaft, *k*, the gearing rotating the piston, *c*, once every two revolutions of the crank-shaft, *k*, or four-stroke cycle of the piston, *c*. In the combined reciprocating and rotating motion of the piston, *c*, the port, *d*, in, c^1, registers with the inlet-port, *b*, and the exhaust-port, b^1, in the cylinder, *a*, and opens and closes these ports at the proper periods, for admitting gas and ejecting exhaust products. Fig. 1 shows the piston, *c*, and the port, *d*, in the upper end of it at the beginning of the first stroke down. The inlet-port, *b*, in the cylinder, *a*, and the port, *d*, in, c^1, are about to open to each other to admit gas into the hollow cylindrical end, c^1, of the piston, *c*. Following the dotted lines, E, on diagram, Fig. 5, the inlet port, *b*, in the cylinder, *a*, and the port, *d*, in c^1, owing to their form, and to the combined reciprocating and rotating movement of the piston, *c*, open quickly to each other, and remain open, admitting gas, closing quickly at the end of the inlet or first stroke down, during which the piston, *c*, has made a fourth of its rotation in the cylinder, *a*, and the port, *b*, in the cylinder, *a*, is covered by the side of the sleeve, c^1, of the piston, *c*, and the port, *d*, is covered by the side of the cylinder, *a*. During compression, the port, *d*, in c^1, is kept covered against the side of the cylinder, *a*, as it moves further from the inlet port, *b*, until the compression stroke, and half a rotation of the piston, *c*, is completed. When the gas is fully compressed in the sleeve, c^1, ignition and the explosion stroke down begins and continues until the port, *d*, in c^1, towards the end of the stroke opens to the exhaust port, b^1, in the cylinder, *a*, both ports being fully open to each other at the end of this stroke, when the piston has completed three-fourths of its rotation. The exhaust or fourth stroke up of the piston, *c*, now begins with the port, *d*, in, c^1, and the exhaust port, b^1, in the cylinder, *a*, full open to each other until near the end of the stroke, when the ports, *d*, and b^1, close quickly to each other, ready to begin the cycle again.—October 23rd, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published November 21st, 1912.

16,965. J. KYLLIAINEN. I.C. engines.
19,356. G. P. P. GOTTMANN. Carburettors.
23,445. W. I. TWOMBLY. I.C. engines.
24,021. E. SCHORR. Vehicle suspensions.
24,106. F. R. DAVIS. Paraffin carburettors.
24,313. C. H. NICHOLS. Mud-guards.
26,337. S. CROSBIE. Vaporisers.
27,228. A. RITCHIE. Rotary valves for I.C. engines.
27,459. A. B. AND C. L. JONES. Change-speed gearing.
28,275. SOC. TERROT AND CO. Friction clutches.
28,364. G. SILVESTRI. Two-stroke I.C. engines.

Applied for in 1912.

Published November 21st, 1912.

3,789. H. H. CLARK. Driving gear.
4,604. F. W. BARNES. Clutches.
6,247. L. L. B. DENIS. Elastic wheels.
7,610. F. J. HEYVAERT. Mud-guards.
11,077. W. S. KNOWLES. Pistons.
11,933. M. GUTTNER. Clutches.
20,428. DAIMLER-MOTOREN-GES. Lubrication pump.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 622. (No. 49, Vol. XVII.) | DECEMBER 7, 1912. | Price 1d. (on Art Paper, 3d.) Postage, ½d.



Polperro, not far from Looe, is about the most picturesque and primitive fishing village in Cornwall, largely patronised by artists, and figures generally several times over in every Academy.

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.
Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.
All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
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United Kingdom	3 6	7 0	United Kingdom	7 0	14 0
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Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.
Small corrections can be accepted up to 6 p.m. on Tuesday.
All communications must be addressed to the Manager.

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Passing Events

The Attempt on Sir Edward Henry.

We are certain that we are only expressing the feeling of the whole metropolitan community of motorists in voicing our horror at the attempt made on the life of the Commissioner of Police by a taxi-driver who had, for some reason, been refused a licence by the police. We cannot discuss the details of the crime—the case is *sub judice* and therefore outside the pale of comment—but we may at least express our sympathy with Sir Edward Henry in the distressing occurrence of which he has been the victim, and our sense of satisfaction that his recovery from its ill effects is likely to be rapid and complete. From our point of view as motorists, it would have been a catastrophe if the attempt on the Commissioner's life had succeeded, for under his administration the police have brought to bear on London's motor traffic problem an amount of sound, common-sense judgment that is directly traceable to his influence. True, we have some grounds of complaint on occasion, but taken as a whole the motorist has but little to cavil at in the way he is treated by the London police. Sir Edward Henry has brought to the study of the subject a mind quite free from prejudice either for or against the motor vehicle, and with the consequence that in no city in the world is it approached from quite the same standpoint of common sense. That being so, apart from the horror with which we must all, as citizens, view attempts on the lives of prominent officials, we have especial reason for gratitude that the attempt met with no more success than it did.

* * *

Cyclists in London Traffic.

Our contemporary the *Daily Mail* has done a great deal of very useful work for the community at large in opening its columns from time to time to the discussion of acute problems affecting the public interest in its larger or smaller dimensions. In a multitude of counsels there is wisdom, runs the adage, but like most other sage sayings that have been handed down through the ages, this needs a great deal of qualification. In the discussion of public affairs through the newspapers, it is almost invariably the minority least qualified to express an opinion which rushes post-haste to commit its convictions to paper, and thus in the bulk these discussions do not either help us to form a correct estimate of public opinion, or to inform us upon the merits of the particular subject discussed. We are minded to these reflections by a certain correspondence which recently took place in the columns of our contemporary relative to accidents to cyclists in the London streets. The consensus of opinion, as we gather it through the letters that appeared, is that the cyclist should be forbidden to risk his neck in those parts of London where the traffic is heaviest. That he should, in a word, be legislated off certain roads. Now, we have thought this matter out most carefully, and, although we admit that the death roll of London cyclists is a terrible one, we regret that we cannot subscribe to this doctrine of differential legislation. If we thought that, as many of the *Daily Mail's* correspondents appear convinced, the whole problem of London's street accidents lay with the cyclist, then we might find reason in the argument for ruling him off the busiest streets. But that is not so. The cyclist is but one of the many traffic problems which have to be faced, and, if we start to deal with him as it is suggested he should be treated, to be logical we must also proceed to legislate specially for *every* form of traffic. That, as we have pointed out more than once in these columns, is a mistake into which very many

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amateurs of traffic are prone to fall. The essence of the matter is that, in treating of TRAFFIC—the word must be spelt in capital letters—that is to say, for the purposes of legislation and regulation, it must be regarded as a whole, and not as a series of detached parts. It is piecemeal regulation that has led to the prevailing chaos, and the condition of the London street traffic will never be better until the problem is grappled with as a *whole*. For instance, the law says that the speed of motor vehicles must not be greater than a particular number of miles per hour and, further, it says that motor cars must not be driven in a manner dangerous to the public—that, as a measure of public safety. Accidents occur, and an agitation arises for the further regulation of motor traffic into which the uninformed and the merely casual student plunge with avidity. But they ignore the essential fact that outside of the motor traffic itself there must be a number of contributory causes operating. Of what avail is it to impose further regulation upon one form of traffic unless the authority controlling the whole sees to it that *other* traffic assists towards the common end of making the streets safer for the pedestrian and the driver to traverse? They do not apparently realise that the misdoings of one form of traffic almost necessarily compel another to equally transgress. To sum up in the fewest words, all this talk of special regulations for each and every form of traffic is merely futile and in the direction of making chaos worse confounded. Let us once more insist that the only real remedy is the immediate formation of a Central Traffic Authority which can deal with the problem as a whole. When that is an accomplished fact we may get things straightened out, but not until then.

* * *

Motoring Magistrates and Motor Cases.

Certain cycling organisations in Cheshire are apparently much exercised in their minds upon the question of whether magistrates who drive cars should adjudicate upon cases in which motorists are concerned. They have even gone to the length of asking the Home Secretary what he thinks about it, but with scant satisfaction, Mr. McKenna having very diplomatically replied that he cannot advise on points of law. We quite see the point of the inquiry but not its logic. Have these Cheshire cyclists, we wonder, ever heard of magistrates who ride bicycles? And do they think that the fact that an occupant of the Bench is any less fitted to decide impartially in a case affecting one of themselves because he happens to be an expert rider? We imagine that if such an inquiry were put to the objectors to the motoring magistrate the unguarded answer would be that such a magistrate must of necessity be more competent to judge of the merits of the case from the mere fact of his knowing something about it. To our way of thinking the inquiry, as addressed to Mr. McKenna, is a gratuitous reflection upon the impartiality of those against whom it is aimed. We, ourselves, have no great opinion of the Great Unpaid in the mass, and we have never hesitated to express in the most unqualified terms our disgust at the often prejudiced decisions that are reported from time to time, but vague insinuation and innuendo has never been a part of our policy. That is what is conveyed in this question with which we are concerned at the moment.

Has it ever occurred to the sapient querists that if magistrates were to be debarred by their supposed interests from sitting in judgment on cases in which those interests were concerned, the whole fabric of judicial administration would fall to the ground? No horse-owner, logically, could be concerned in trying a case of a carter found asleep on his vehicle; no magistrate who shoots his own or his friends' coverts could sit in a poaching case; no justice of the peace who is a land-owner could decide on the merits of a case of land-trespass. And so the list might be continued almost to infinity. Finally, why do people pester public functionaries with futile and foolish questions?

* * *

The Chauffeur and the Cinematograph.

At first sight it may be a little difficult for the casual observer to discern the precise connection between the chauffeur and the cinematograph. To tell the exact truth, when we caught sight of the heading in one of the morning papers a short time ago, we had almost passed it by under the impression that it referred to another sensational report of a motor accident, in which a car has probably skidded into a picture palace or something of the sort. But something impelled us to look more closely at the article, and we found that it had something to do with an American method of teaching motor driving. One Professor Munsterburg, of Harvard University, has evolved what he is pleased to term a cinematograph nerve test. Incidentally, why he should have troubled himself to think out the nerve test part of the business is rather beyond us—the average cinematograph show is quite enough of a nerve test for most folk without any additional imported sensation. However, the learned professor's theory seems to be that no one should be allowed to drive a car unless he has definitely proved himself capable of acting promptly in the face of danger. Therefore, he has equipped a room at Harvard in which is a car, at the wheel of which the candidate for certificate of sound nerves is seated. The car is so placed that the engine and road wheels are free to move, although the car, naturally, remains stationary. Immediately in front of the car is a screen, on which moving pictures are projected. These pictures appear to depict every kind of foolishness that can be perpetrated by pedestrians and drivers, and the candidate is expected to do the right thing in the right place in order to avoid accident. The system, we are told, has proved highly successful, and chauffeurs who have passed the "cinema test" have invariably proved themselves to be careful and efficient drivers. We can quite believe it—so long as they are not trusted with the pilotage of a moving vehicle.

The idea seems to have infinite possibilities. Why run the risk—such as it is—of motoring at all, or why go to the expense of touring when it can all be brought home to the door? If some enterprising company would

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only undertake such matters as "A week-end among the Pyrenees," or "Motoring across Siberia on Sunday," it ought to simply coin money. Nothing would be required but Professor Munsterburg's darkened room and a supply of suitable films and we could have all the sensations of Continental touring for next to nothing. No need for tryptiques, no delays at frontier custom houses, no fines for breaches of speed or any other laws—we could simply go where we listed within the limitations of the film stock. And as for sensations—there is simply no end to the potentialities. The "road-hog" could indulge in the most hair-raising escapades without risk to himself or the contributories; the motorist of half-penny newspaper fiction could kill all the photographic pigs and chickens—even children, if he liked, so as to keep up his newspaper reputation. But on the whole, and now we come to think of it, the old style of motoring is good enough for us, and as for learning to drive by flickergraph—well, the idea "gives us to laugh."

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The Road Board and Motor 'Bus Traffic.

When discussing recently the question of the funds of the Road Board and grants for road improvement, particularly in relation to the damage caused by motor 'bus traffic to roads whose foundations are unsuitable for carrying heavy motor traffic, we advanced the opinion that the making good of such foundations should come under the head of "improvement" and not "maintenance." This idea of ours was traversed by the R.A.C., which apparently takes the view that such works are properly to be called those of maintenance and that the Road Board's funds cannot properly be devoted to them. Apparently, the Road Board thinks with us and against the Club, for we read that it has been decided to make a grant of £1,000 to the Stoke Newington Borough Council as a contribution towards the cost of strengthening the foundations of a road within the jurisdiction of that body, which have proved inadequate to carry the motor omnibus traffic which passes over the road. For ourselves, we think the Road Board is absolutely right. The work to be undertaken is undoubtedly one of improvement within the meaning of the Development Act. Once, however, the foundations of any road have been put right, the keeping of it in proper repair is undoubtedly a work of maintenance which must be done at the proper cost and charge of the local authority.

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The Civilian Motor Reserve.

Some weeks ago we published the conditions under which motor car and lorry drivers are invited to join "Category C" of the Army Service Corps as civilian motor drivers. It will doubtless be remembered that the proposal is to form a corps of civilian drivers available for service on mobilisation. A subsidy of £4 annually is to be paid, there being no liability to service save in case of actual war, while in the event of a general calling out of the reserves the rate of pay is to be 42*s.* per week, with separation allowances for married men, and certain other subsidiary advantages which are simply matters of detail. We are authoritatively to understand that the scheme has so far been fully successful, and that a very satisfactory number of qualified drivers has come forward for enlistment.

It is not with the details of the scheme, however, that we are concerned at the moment. To appreciate its full significance, it is necessary to remember that for the first few years of its development the industrial car did not at all keep pace with the pleasure car. To a great extent this was due to the fact that the designers of the larger cars were content to make them merely heavier examples of the pleasure car—it had not been properly appreciated that for the special work they had to do, these vehicles required a special treatment of their own. Thus, the first adventures of the Army into the realms of mechanically-propelled transport were not so fortunate as to give the authorities a great deal of encouragement to betake themselves wholly to mechanical locomotion as a means of getting supplies to armies in the field. Year by year, however, the industrial vehicle has been improved, until now the time has come when the War Office, most conservative of departments of State, feels itself justified in breaking away from the form of transport which has served armies ever since war was reduced to something of a scientific art. There is no mistaking the signs of the times. Mechanical transport has in reality arrived to add to the mobility and certainty of movement of civilised armies, and we are now within measurable distance of the time when the horse, except for the use of cavalry, will have ceased to be a factor in the world's fighting forces. It is, perhaps, only repeating a platitude to say that this is a mechanical age, but the reflection cannot be avoided in the consideration of such developments as that which we are now discussing. It is almost true to say that we actually live by machinery and that without it the affairs of the world would come to a sudden and utter standstill. Almost every day we see new realms invaded by the god of the machine, until we instinctively begin to ask the question of what will be the ultimate end of it all. Possibly we may at the finish have to pay a heavy price for what we now term progress, but however that may be it is certain that we must still go on in the pursuit of what is, on the one hand, termed progress and, on another, an insensate lust for the speeding-up of things. But the AUTO. is not a philosophical magazine so we must leave the worrying out of this latter proposition to others.

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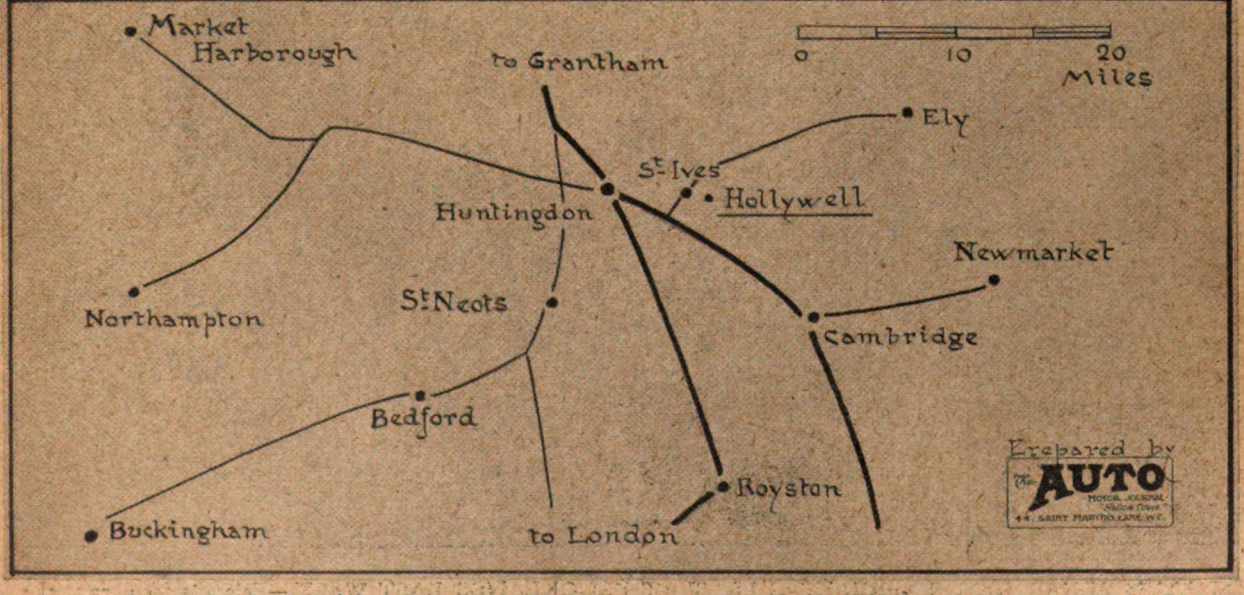
Two Thousand Guineas for Home-Produced Fuel.

WITH commendable promptitude, the Society of Motor Manufacturers have acted upon the suggestion put forward by the Hon. Arthur Stanley at the S.M.M.T. Banquet at the Savoy Hotel, by announcing a prize of two thousand guineas for a home-produced fuel at a commercial price, and obtainable in sufficient quantities. The conditions under which the prize will be awarded are now being considered by the S.M.M.T. Management Committee, but the principal points will be that the fuel must be suitable for present-day motor engines, and produced from materials available in this country, so that the supplies can be practically unlimited.

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WITH THE CAMERA AND THE CAR.





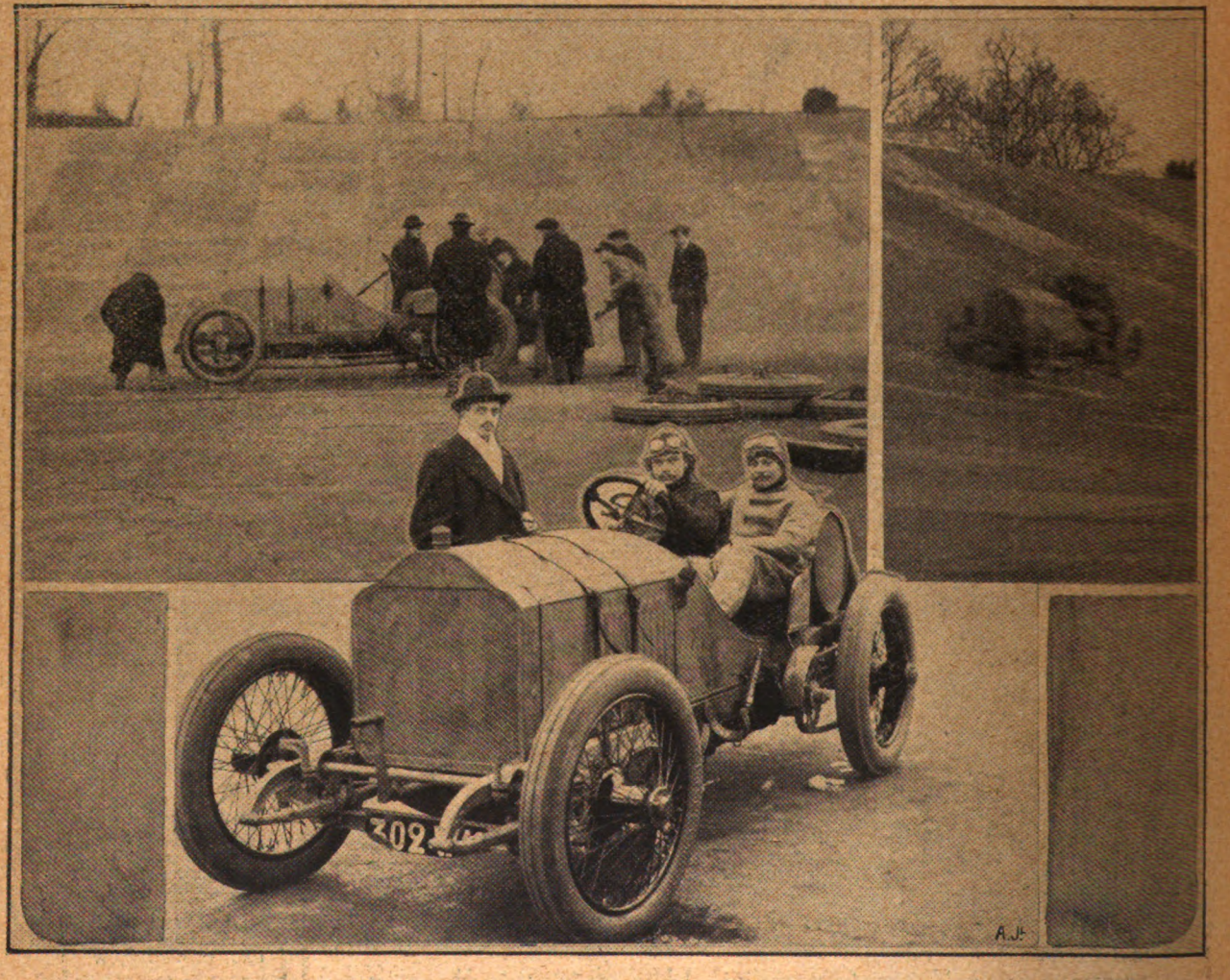
HOLYWELL VILLAGE.—Another charming Kodak camera study of this interesting and attractive spot near St. Ives, Huntingdonshire.

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MORE RECORD BREAKING AT BROOKLANDS.

RECORD breaking is very much in the air just now and Brooklands has seen a good deal of it. Last week it was the scene of a wonderful six hours' drive by Victor Hemery, his mount being one of the 59·6 Lorraine Dietrich cars in road racing trim and without any wind cutting shields or similar devices which most drivers appear to consider essential to success at record breaking on the track. The car only reached this country on the previous Friday evening, in charge of Hemery and his mechanic Gilli, but it was at once taken to the track, and on Saturday Hemery had half an hour's practice. On the Monday a full hour was put in, but on neither occasion was it possible to do any real speed work on account of the track being barred in two places. Hemery's experience of the track when he was here in 1909 and on the 84·9 Benz car set up new world's records for distances up to a mile stood him in good stead, however, and on Wednesday week he started off with every confidence. The task was commenced at 9.15 a.m. and at the end of the first hour the Sunbeam record for that time had been beaten by well over five miles.

The first incident occurred during the second hour when a tyre burst, causing a slight delay. Not long after this the car was stopped as it was noticed that something was hanging loose behind. It was found that the collar holding one of the petrol tank stays had come away and the tank was being held by one stay only. By the aid of straps a temporary repair was effected and the car continued and completed the third hour before stopping for petrol. It was then noticed that—no doubt on account of the excessive vibration caused by the rough surface of the track—that one of the bolts of the connection between the radiator and the water circulating pipe was loose. This meant a delay of 23½ minutes, which was sufficient to baulk the car from beating the 300 miles record. Towards the end of the fifth hour Hemery decided to make an attempt to cover 100 miles in the hour and as this record must be made from a standing start he pulled up on the starting line. Fifty miles were covered well ahead of time, but when it appeared that Hemery would easily accomplish his task, a burst tyre spoilt his chances. A new wheel was fitted and the car



HEMERY'S GREAT RECORD-BREAKING FEAT AT BROOKLANDS LAST WEEK.—Below is Hemery at the wheel of the powerful Lorraine Dietrich, with Mr. Sorel standing by the side. On the left is a wheel and tyre-changing episode, and on the right the car travelling at over 100 m.p.h.

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then went on to complete the six hours. The result of the attempt was eleven new world's records as shown in the following table :—

Time Records.

		Speed per hour.
1 hour	97 miles 1,037 yards	97·59 miles
2 hours... ...	189 ,, 1,747 ,,	94·99 ,,
3 ,, ...	284 ,, 817 ,,	94·82 ,,
4 ,, ...	344 ,, 1,344 ,,	86·19 ,,
5 ,, ...	422 ,, 1,574 ,,	84·59 ,,
6 ,, ...	518 ,, 312 ,,	86·36 ,,

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Benzol Experiences Wanted.

FROM the information at present available, the Petrol Committee, which is now giving its attention to the question of fuels, other than petrol, for use in motor vehicles, finds that benzol appears to be the most ready substitute. Expert evidence is being obtained as to the production, distribution, &c., of this spirit, but the Committee is anxious to obtain from motorists, both private and commercial, reports of their actual experiences.

All motor vehicle owners who have used benzol to any extent are therefore invited to write before December 13th to the Secretary, Royal Automobile Club, Pall Mall, London, S.W., marking the letter "Petrol Committee," giving information under the following headings :—

1. Description of benzol used, where obtained, and price paid ; state if cost varies for large or small quantities.
2. Quantity used, and extent of experience of this fuel.
3. Types of vehicles with which fuel has been used.
4. Description of any adjustments necessary to carburettor and cost thereof.
5. General opinion of the usefulness of the fuel, and any other remarks or suggestions.

Distance Records.

100 miles ...	1 hour 1 min. 27·69 secs.		97·62 miles
150 ,, ...	1 ,, 31 mins. 52·06 ,,		97·97 ,,
200 ,, ...	2 hours 5 ,, 56·73 ,,		95·51 ,,
400 ,, ...	4 ,, 34 ,, 23·87 ,,		87·46 ,,
500 ,, ...	5 ,, 48 ,, 38·87 ,,		86·05 ,,

The 1, 4, 5 and 6 hour records were previously held by the Sunbeam car with 92 miles 797 yds., 319 miles 242 yds., 391 miles 1,429 yds. and 451 miles 445 yds. respectively, while the records for 2 and 3 hours stood to the credit of the Thames car with 173 miles 810 yds. and 261 miles 1,633 yds. respectively.

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Royal Patronage at the C.M.U.A. Parade.

HIS MAJESTY THE KING has again manifested his interest in motoring matters by consenting to become patron of the Annual Parade of Commercial Motor Vehicles which will be held on Whit-Monday next, May 12th, 1913. According to the present arrangement, upwards of £300 in cash prizes will be distributed amongst the drivers, in addition to which there will be a number of cups, &c.

Motor Ambulances at the Docks.

IN spite of precautions accidents will happen, and the Port of London Authority are to be commended for the practical steps they have taken to ensure that victims of mishaps at the docks may be taken to the hospital as quickly as possible. They have installed electrically-driven ambulances at four stations, so that vehicles are available for the Victoria and Albert, Surrey Commercial, and London and West India Docks, and telephone call-boxes have been placed at frequent intervals. The average time which elapses between the call and the arrival of the injured man at the hospital is 18 minutes.



THE CAR IN SOUTH AFRICA.—One of the great attractions at the Hospital Fête, held at Rose Bank, Cape Town, last month, was the competition for decorated motor cars. A wealth of flowers was requisitioned for this fête, in striking contrast to the wintry weather at home. Our picture shows the procession of decorated cars, the results being: 1st, Mr. E. J. Lawton's Swift; 2nd, Mrs. Rose's Unic. Amongst those competing were several members of the Royal Automobile Club of South Africa.

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MOTORING IN SOUTH AFRICA.

LESSONS FROM TRANSVAAL COMPETITIONS.

From Our Own Correspondent.

Johannesburg, October 7th, 1912.

THE American invasion of England with cheap cars, which seems to be creating no little excitement and activity in the trade, to judge from the columns of the technical Press, has an interest in this country, and especially on the Rand, where American and English makes come so much into competition.

The Transvaal Automobile Club have now completed their programme of events of the season, as now the drought is breaking, and motoring loses some of its pleasure when what are in the dry season small waterways become rivers, and over which the Public Works Department enterprise has not gone the length of erecting bridges.

The competitions this year in the Transvaal have been highly instructive, more especially the last two events—the speed test and the hill climb. In connection with these two contests the Trials Committee of the Club made a special concession to American cars by instituting a separate section for them, but not depriving them of any chance in the general competition. This concession was made because of the recognition of the high horse-power and light weight of the American cars. It would not be fair to pit them against the English or Continental made cars with less horse-power and greater weight.

Then comes the lesson. Of the American cars in the hill-climb not one took a prior place to British-built cars either on time or on formula. The performances of the American cars were a great disappointment to their champions. With their high horse-power and light weight it was a confident anticipation of some that the honours of the day would be with the Stars and Stripes, but actual test under the official ægis completely put them out of court. Another competition that was regarded as in favour of the American cars was the mile speed test on the East Road, but here again the Britishers more than held their own. There a 10-h.p. Austin justified the good opinion held here of the make by coming out top on formula. Mr. C. G. Saker, on a 12-h.p. Talbot, took second place, and the next three places were also taken by British-made cars—Star, Talbot and Sunbeam respectively. The best performance in the American section even did not come up to the second placing in the general section. The fastest time was done by a Talbot driven by Mr. C. Hoare, and the consolation prize was also taken by an amateur driver of a Talbot—this make thus taking three prizes out of four. The figures, however, speak for themselves. They are—

Speed Competition, September 7th, 1912.

Competitor.	Car.	h.p.	Allowance. secs.	Time Taken. m. s.	Net Time. m. s.
H. Gill ...	Austin ...	10·28	28½	1 15	0 46½
C. G. Saker ...	Talbot ...	15·35	11½	1 8	0 56½
H. Bennett ...	Star ...	11·097	24½	1 23⅘	0 59⅗
C. Hoare ...	Talbot ...	22·68	Nil	1 0	1 0
P. Lang ...	Sunbeam ...	19·2	1¾	1 3⅖	1 1⅗
D. Saker ...	Delage ...	8·456	38	1 44⅖	1 6⅖
G. Chambers ...	Talbot ...	15·36	11½	1 27⅖	1 16⅕
American Section—					
P. Lang ...	Buick ...	17·28	6¼	1 3⅕	0 56⅕
B. J. Penney ...	Ford ...	18·4	4	1 13⅖	1 9⅖
T. Greig ...	Flanders ...	16·25	8¾	1 31⅕	1 23⅓
J. Campbell ...	E.M.F. ...	23·929	Nil	1 28⅖	1 28⅖
J. Campbell ...	Flanders ...	16·25	8¾	1 42⅖	1 33⅓

The American Rout.

Undaunted by their rout in a department of motoring that was looked upon as the particularly American chance, confidence was unshaken as to the outcome of the competition that was held last week at Mulder's Drift in the Krugersdorp district, when the obligation was to climb a hill some 1,400 yards in length and about the most exacting that could be found in the Transvaal and which is much in use for motoring and motor cycling competitions. Here, again, the American cars were wiped out, and all found places at the wrong end of the prize list, and what consolation could be extracted from the fact that they were in a group. The honours of the day fell to the Talbots, doing, as they did, the hat trick, by winning all the prizes of the race, first and second and fastest time prizes. Mr. C. Hoare, who, as mentioned above, did fastest time in the previous speed test, not only did fastest time in the hill climb, but also won on formula, while Mr. C. G. Saker, with a 12-h.p. Talbot, also assisted in vindicating the good name of British cars when it comes down to a test of actual efficiency, by taking the second place. The official figures are :—

Competitor and Car.	h.p.	Total Weight. lbs.	Time Taken. m.	Time Taken. s.	Factor.
C. Hoare (Talbot) ...	22·68	3,475	1	46⅘	86·2
C. Saker (Talbot) ...	15·36	3,200	2	28¼	84·3
T. B. Adair (Vauxhall)...	19·44	3,250	2	6⅘	79·3
P. Lang (Sunbeam) ...	19·2	3,495	2	29	73·3
S. Anderson (Sunbeam)	19·2	3,575	2	44	68·1
H. Gill (Austin) ...	10 28	2,575	3	57	63·4
J. O. Lucas (Star) ...	11·0976	2,250	3	29⅘	58·03
P. Lang (Buick) ...	17·282	2,175	2	16⅘	55·3
T. Greig (Flanders) ...	16·25	2,325	3	31⅘	40·5
B. J. Penney (Ford) ...	18·4	1,625	2	54¼	30·4
B. J. Penney (Ford) ...	18·4	1,500	2	42⅘	30·1

South African Motor Journals.

The sport and trade of motoring in South Africa has so far and fast developed of late as to now have two specialist papers. About two years ago the *South African Motorist* was commenced in Johannesburg in a small, modest way, and has gradually and steadily grown to such a large extent that one of the largest publishing establishments in this country, *The Cape Times*, has taken an interest in it and the services of Mr. Victor Hart, an esteemed correspondent of the AUTO., whose writings have been closely followed here, as a member of the editorial staff. The other journal, a three months old product, is entitled *Motoring in South Africa*, and is issued in Cape Town, and Mr. A. T. Hennessy, in addition to occupying the editorial chair, is also secretary of the Unionist party throughout the Union.

A Not New Problem.

In Cape Town and elsewhere the authorities who control the road traffic are finding a difficulty in regard to speed limits, a difficulty that no doubt often had to be confronted in England in earlier days. In Cape Town the limit is eight miles an hour, but cars exceeding 4,480 lbs. in weight are restricted to four miles an hour, and all cars are restricted to three miles an hour when turning street corners. In Johannesburg there is a general limitation to 10 miles an hour, and yet, according to schedule, the municipal tram cars have in many parts to set a pace of twenty miles in the sixty minutes. The matter has been taken up by the various automobile clubs in the Union, and no doubt a Bill will be introduced at next meeting of Parliament with the idea of securing uniform and reasonable legislation.

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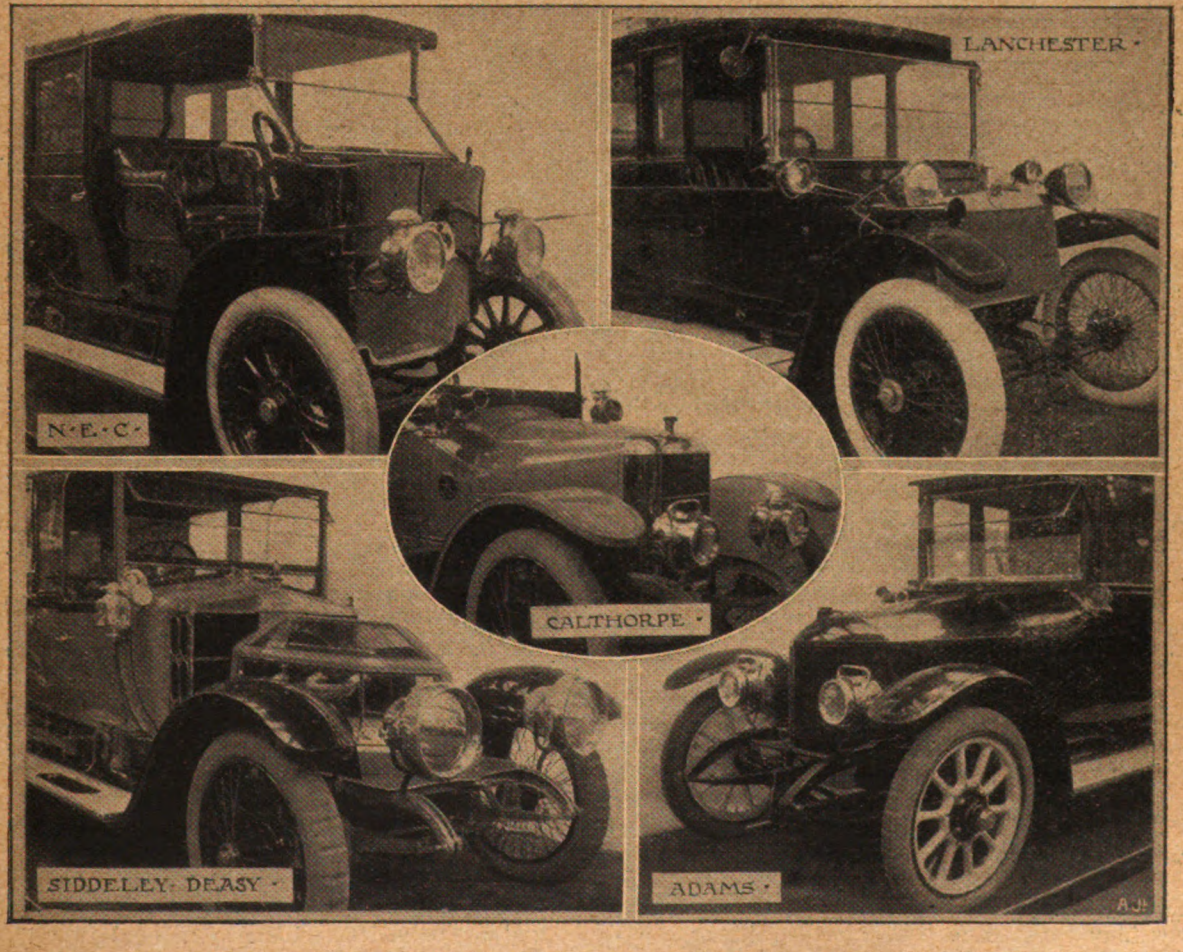
A CYCLE CAR TRIAL.

THE *Motor World*, our Scottish contemporary, publishes in its current issue a lengthy article by Mr. H. Massac Buist advocating a cycle car trial in Scotland next year, preferably, says Mr. Buist, during the first two weeks of July. That was about the time, if we remember rightly, that we used to have the car trials in those delightful highlands where it rains every time you go up on the mountain tops and gets sunny hot every time you descend to normal levels. A perfectly beautiful place, Scotland, a country that is not to be seen to perfection save by the aid of an automobile, and if the cycle car is to help more people to appreciate the grandeur of the rugged hillside in its russet doublet, boulder buttoned, and slashed with sparkling rivulets, then we say by all means take the cycle car through Scotland.

It is a fine test country withal, and there is no doubt whatever that the motor car industry gained much through the Scottish Trials of old. There are hills and roads in Scotland that, if taken for a fortnight at a stretch and running to schedule time, provide as good an indication of fundamental reliability as one could wish of any so-called practical test. The truth of the matter is that in the earlier days of the new industry, and we think that it is justifiable thus to describe the cycle car movement, tests of the kind that a Scottish trial affords serve to locate those minor defects that the manufacturer is sometimes apt not to appreciate unless they are thus significantly brought home to him by loss of marks.

The prejudiced person driving his car under unofficial observation all too easily acquires the habit of stopping here and there to tighten this or to slacken that. It is a matter of no consequence, nothing has really gone wrong —and so the veil of blindness to minor things is studiously drawn across the eyes. But, when one has that watch dog of an observer on board, with the ever ready notebook and the pencil with the stubby point, the hieroglyphics of which are converted into the semblance of a post-impressionist wash drawing by an inevitable shower of rain, then is the question of a minor stoppage a very different matter. It is a shame, of course, that one should be penalised for having forgotten to open the petrol tap in the morning, when some cars that could be mentioned do not even possess the refinement of such an object, but that is just where the Scottish Trials serve their best purpose.

The roads and the hills and the corners; the starting and the stopping, the waiting for the lapse of schedule time and the hurrying forward lest the schedule time should elapse too soon; and, above all, the persistent progress of the journey day after day, brings a stress to



"Auto." (Yellow Cover) Copyright.

SOME FRONTS OF CARS.—The N.E.C. and the Lanchester are interesting examples of cars that do not possess bonnets. The Siddeley-Deasy is a very original type of bonnet, which in this particular photograph appears as a glass-panelled show case for the engine. The Calthorpe and the Adams are also uncommon types.

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bear upon the vehicle that shakes some things too loose and makes other things too tight; breaks something here and there, or puts something else out of line in a manner that few tests of any other description can accomplish. Then there are sure to be two or three really wet days when the little machines will have to plough through a heap of mud, which will be a very suitable test for anything approximating to an exposed transmission. With good fortune, they will endure this ordeal on the first day so that they may get the dirt and the grit thoroughly into their chains or their belts, as the case may be, and if they have to wash them out then they must lose marks, which is just what we want to see.

On the whole, therefore, although the final word will rest with the manufacturers, we are favourably inclined towards the scheme outlined in the *Motor World*, although we do not necessarily agree with every particular of Mr. Buist's own arguments. We agree, however, that in the main it is just as well to be as simple as one possibly can in the definition of the machines that can take part, and to this end the Auto-Cycle Union's weight limit of 6 cwt. for the chassis seems to us to be a very appropriate standard, at any rate for a first attempt.

We would, however, certainly add a price limit also; the object of the cycle car, as we understand it, is to bring the conveniences of a car within reach of those whose means do not permit them to buy, nor keep up, a full-sized machine. Now it may be a very fine accomplishment, from the engineering point of view, to produce a miniature automobile complete in all details that comes within the weight limit, but if this involves a price that is comparable with motor cars, even of the runabout order, we cannot agree that the machine is, properly speaking, a cycle car. For our own part, we should put the price limit at £125 complete with hood, screen and lamps, and we should make it absolutely essential for the car to tour through the trials in its selling condition.

The reason why we include these fittings that are ordinarily extra is because the cycle car appeals to us as being essentially a vehicle designed to attract the man whose requirements in motoring are not satisfied by the motor cycle and the side-car. In fine, it is pre-eminently the machine for the man of moderate means and his wife, and it is from this class of motorist that the new industry is likely to secure the bulk of its money.

We do not in the least overlook the sporting enthusiast who has a profound contempt for these luxuries, mainly because they interfere with speed. What we do say, however, is that it will profit the industry to learn the lesson that it took so long for the big car maker to learn, namely, that the sporting fraternity are very much in the minority when the vehicle is once designed to make a real appeal, by its comfort, to the class that has no interest in it whatever as a purely sporting machine. Sportsmen may say what they like, but the fact remains that few sane men would think of taking their wives on a fortnight's tour through the Scottish Highlands without hoods and wind-screens on their cycle cars. Why should they? To do so is merely a species of childish disregard of facts. It rains in Scotland, in fact it is perfectly certain to rain in Scotland when you get up in the hills. Very well then, you are either going to get drenched through and risk a very unpleasant cold, or you are going to dress up in oilskins and be relatively uncomfortable while it is fine. We did it ourselves in the old days and thought it grand, but we have learned more sense now. The cycle car, remember, has less accommodation for big overcoats and the like, than has the full-sized vehicle.

Again, in the matter of wind-screens, the protection is no more than one owes to one's eyes. If you do not use a windscreen you must wear goggles. If you do not wear goggles you will find yourself paying considerable fees to an oculist before you are many years older, and even if you do wear goggles you still inhale road dust through the nose, and there is many a motorist who has had to pay dearly for subsequent trouble in that direction through the absence of wind-screens in the early days of motoring. We say, with every emphasis, therefore, do not let these little cycle cars begin where the motor cars in the old days began. Let the industry realise what is really wanted by the people who ultimately will support them in the greatest numbers, and not be misled by the temporary satisfaction of relatively few people. Let the cycle cars in the Scottish Trials go through the event as comfortable machines; incidentally, it will create a much better effect, and give a much greater impetus to business. Let it be well advertised, moreover, that not a machine is competing but that can be bought for £125 or less, as you see it.

Towards the latter part of his article Mr. Buist touches on that very delicate subject, the need for ensuring the entry of a standard machine. This is, of course, the everlasting bogey in the competitive arena, and it is extremely difficult to know how to vanquish it. We are frankly amused at Mr. Buist's subtle suggestion that "the judges should reserve to themselves the right of testing materials of any parts concerning which they might be in doubt. . . . They should have the right at the end of the trial to break up that axle and examine it, to prove whether or not the steel was as specified, or whether the part was made of better material than the standard product." We can only add as a suggestion to this that the judges might preferably engage the lecture hall of some engineering college and make known the result of their examination in proper academic style. It would be such an extremely instructive and altogether interesting event.

In another matter, we concur with Mr. Buist most heartily, however, namely that the event will be in good hands if it is organised by the Scottish Automobile Club. There is no finer organiser of trials than Mr. Robert J. Smith, the secretary of that club, and there is no committee with a better reputation for backing up its secretary's endeavours, than that over which Mr. John Adams has so long presided as the chairman. The details may well be left to the S.A.C., and we would only ask this, that while they are about it, let them once more collect, as they did of old, the very fullest particulars on every conceivable technical point. The collective and comparative information thus obtained in itself constitutes a lasting monument to the usefulness of their energies.

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An I.A.E. Crompton Medal.

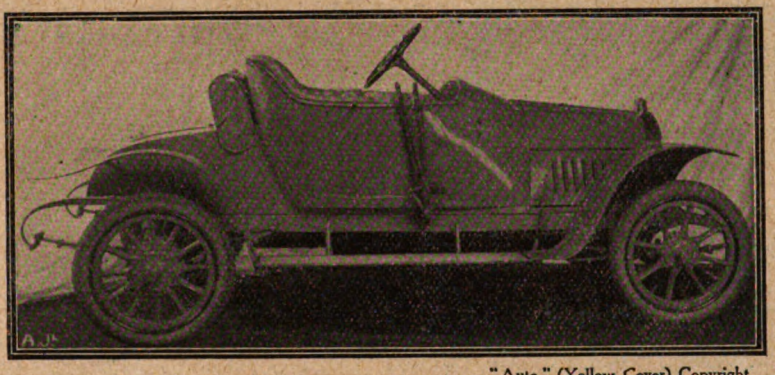
MAINLY on account of its youth, the Institution of Automobile Engineers has not a great array of awards by the bestowal of which it can honour those who spend time and energy in preparing papers and lectures. A start has been made, however, to remedy this deficiency, and by the kindness of Mr. L. A. Legros, a medal, to be known as the Crompton Medal, and embodying a portrait of Col. Crompton, the first President of the Institution, is to be offered annually for the best paper read before the main Institution during the session.

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The AUTO MOTOR JOURNAL

THE 5-12-H.P. OPEL CAR.

OUT of the large range of Opel cars that the British Electromobile Co., Ltd., of Halkin Street, London, S.W., are placing on the market for the coming year, the smallest model, rated by the manufacturers at 5–12-h.p., attracted more attention at the recent Olympia Show than the larger types. And we were not surprised to hear this, for although the bigger and more powerful cars that were to be seen on Stand 108 quite came up to the excellent reputation these cars enjoy on the Continent, even more than in Great Britain, the little 5–12-h.p. was quite one of the finest small cars that were to be seen at the show.



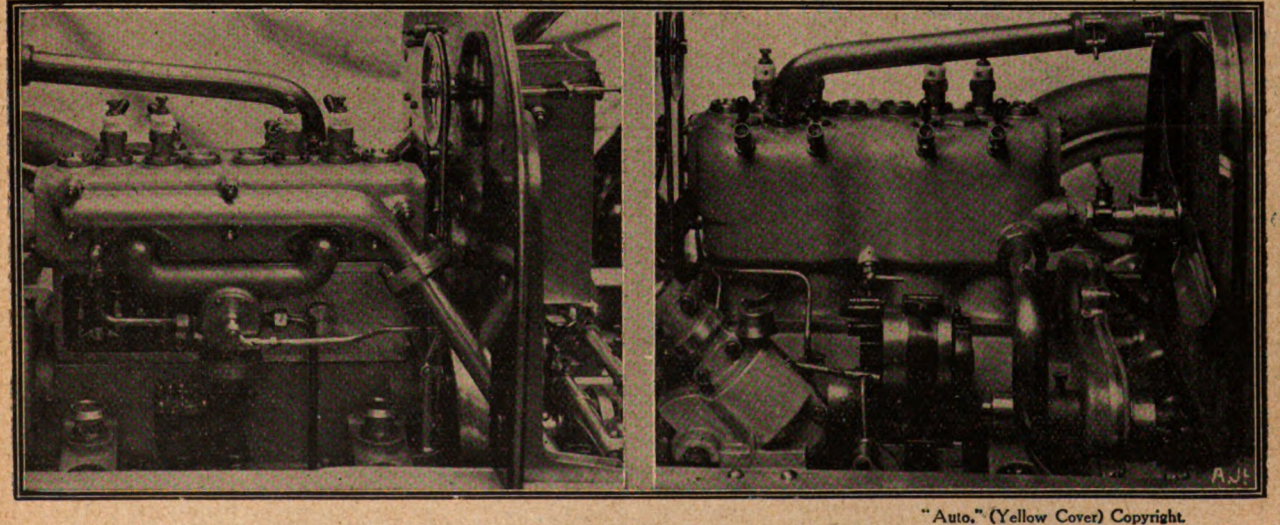
"Auto." (Yellow Cover) Copyright.

The 5-12-h.p. Opel, complete with standard two-seater body.

It is said of many low-powered four-cylinder chassis that they are a high powered car in miniature, but rarely indeed have we come across a small car where this is more true than in the case of the smallest of the Opels. If you look at the illustrations that accompany this article, this fact will become quite clear. Even the smart and clean outline of the complete car suggests that the makers have taken unusual trouble over the appearance of their smallest model. Unfortunately a photograph cannot be made to give an adequate indication of the materials a body is made of, but the closer this car is inspected the more the observer becomes aware that there is nothing cheap about it, except its price. Everything in this car—design, workmanship, and materials are not only up to, but indeed above what one would expect in a car that is sold at under £250 all told.

When looking at the illustrations of the engine and other chassis detail, it may occur to you that you have seen cars that appeared less complicated and presented to the eye, perhaps, a better picture. But that somewhat complicated appearance is just the proof that the little 5–12-h.p. Opel is a small model of a big car. Nothing has been put out of the way or out of sight. Every part is right there where you see it and can get at it with both hands should it be in need of adjustment. This point is all the more necessary in case of a small car, which more often than not is being driven and attended to by the owner without the aid of a professional chauffeur. In cars of this type things that are out of sight are all too frequently out of mind; therefore they get neglected and sooner or later give trouble. Not so in this little Opel; everything is just there and when you lift the bonnet and go round with the oil-can all the parts that need attention, so to speak, call for it by their mere presence.

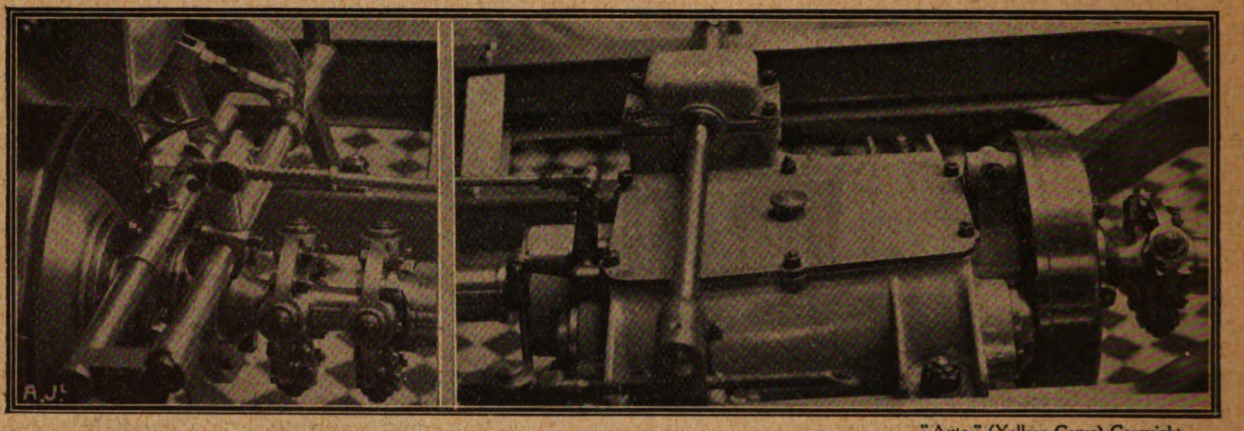
The four cylinders of the engine have a bore of 65 mm. and a stroke of 98 mm. and are cast in a monobloc. Ample water-jackets are a feature of the casting and the cylinders are kept well apart. This practice again permits of long crank-bearings to be fitted in the base-chamber, the need for which, especially in small-bore high-speed engines has quite recently been pointed out in the columns of the AUTO. There are three main bearings to the crank-shaft which are well provided with lubrication. The lubricant is contained in a tank on the dashboard containing a dredger-chain which carries four "buckets." The dredger is driven by a spring-belt from the rear end of the cam-shaft, and the buckets empty the oil into pipes leading to either side of the centrally divided base-chamber. A third pipe leading to the thrust-collar of the clutch receives an occasional drop of oil from a small spoon attached to



"Auto." (Yellow Cover) Copyright.

Both sides of the 5–12-h.p. Opel engine, showing spring-belt drive to lubricator and accessibility of the magneto.

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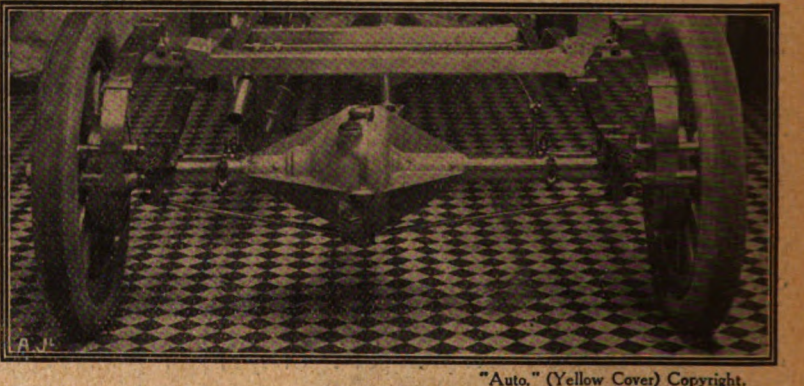
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CHASSIS DETAILS OF THE 5-12-H.P. OPEL.—The double universal-joint behind clutch and the withdrawing gear. Notice the oil-pipe leading to the thrust-collar. On the right is the large and substantial gear-box, with foot-brake drum and universal-joint.

one of the dredger-buckets, and so keeps the collar well supplied with lubricant. The oil in the crank-case is distributed by splash. A very clever indicating device is fitted to the oil tank on the dashboard. The spindle that drives the dredger-wheel through worm-gearing inside the oil-tank has been continued so as to project through the tank, and it carries a little wheel on the outside, the revolutions of which tell the driver that the apparatus is working. The whole dredger-gear can be thrown out of action by means of a dog-clutch engaging the driving pulley.

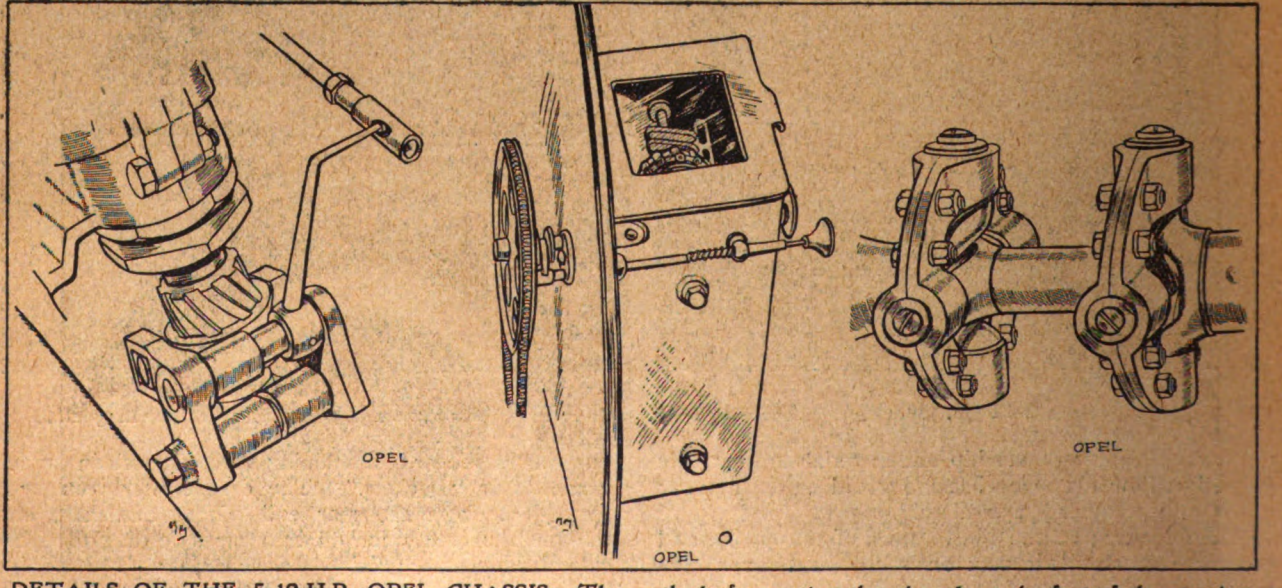
All valves are on the near side, are actuated by a single gear-driven cam-shaft, and are boxed in by a pair of substantial cover plates. The carburettor is a G.A., gravity-fed from a quaintly shaped tank behind the driver's seat, and ignition is provided for by a U.H. Magneto. Cooling is by thermo-syphon circulation and the action of the gilled-tube radiator is assisted by a fast running three-bladed fan.

A particularly well made part is the leather faced cone-clutch. It is mounted on a projecting stump of the crank-shaft, and ample provision is made for the lubrication of the spigot. The well-designed clutch



"Auto." (Yellow Cover) Copyright.

A substantial rear axle and large springs are features of the 5-12-h.p. Opel chassis.



DETAILS OF THE 5-12-H.P. OPEL CHASSIS.—The method of operating throttle-rods at the foot of the steering column by worm and nut. The dredger-lubricator on dashboard. The very substantial double universal joint between clutch and gear-box.

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withdrawing gear forms the subject of one of our illustrations while the details of the excellent double universal-joint between clutch and gear-box are made clear in one of our sketches. The design of this joint, which is identical with those used on either end of the propeller-shaft, is well worth investigating. All the pins are of ample diameter and are held in phosphor-bronze bushes which have good sized oil-holes, covered by small screw plugs.

Four speeds and a reverse are contained in the gear-box, which is a steel-casting, and, like the engine, is carried on an auxiliary frame. The control-lever works in a gate quadrant. By a double universally jointed propeller-shaft, the power is transmitted to the rear axle where the driving shafts are actuated by a bevel drive. As can be seen from our illustration, the axle is a very rigid and workmanlike job, strongly webbed and stiffened by the provision of a tie rod. A good feature of the differential-casing are the oil filler cap at the top and the level plug below, both of which are clearly visible in our illustration. Three-quarter elliptic springs, which are designed to take the torque and driving strains, form the suspension of the rear-axle, while half elliptic springs are used in front.

Ball-bearings and thrust-washers of good size are liberally used throughout the transmission system and in the road-wheel bearings. Artillery wheels fitted with 710 by 90 mm. tyres are standard. Two independent sets of brakes are provided as usual, the pedal is connected up to the shoes in the transmission brake, while the hand lever works direct on the road wheels. A good supply of tools and spare parts is delivered with every car.

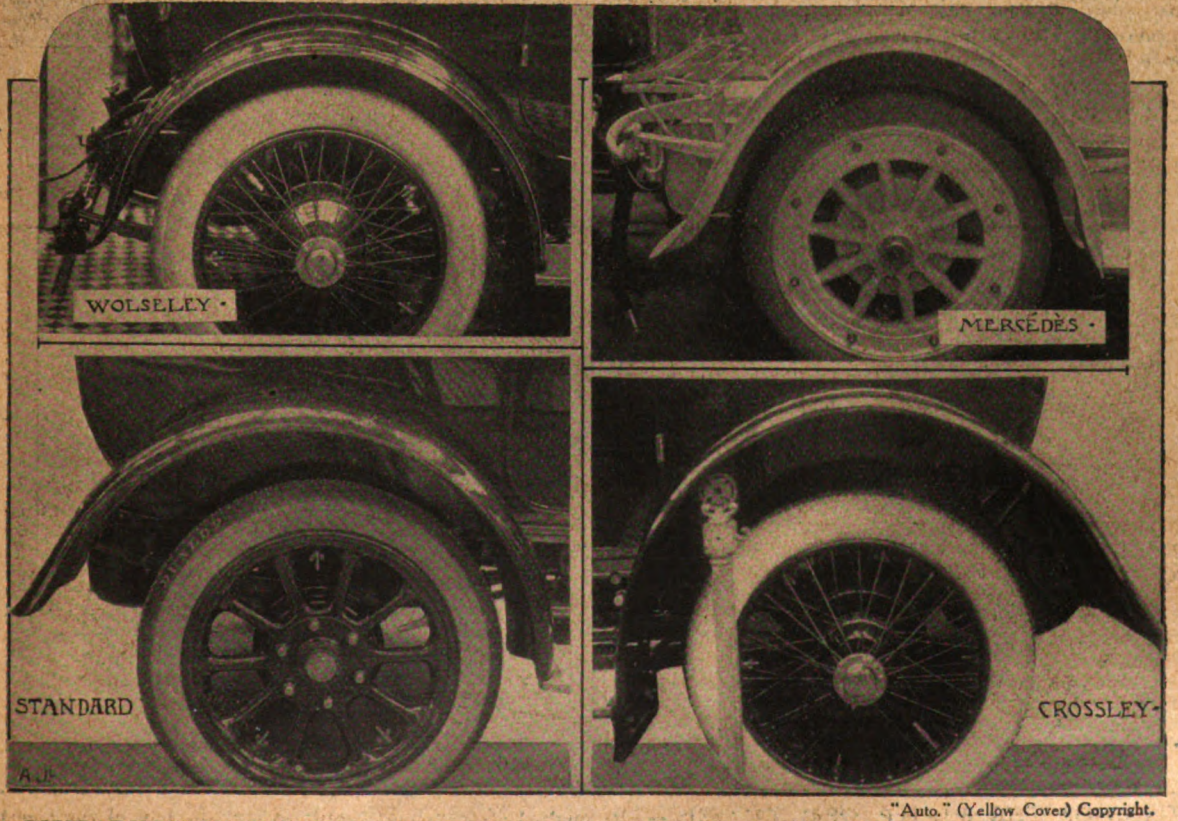
That the manufacturers have every confidence in this car is evident from the fact that they guarantee a petrol consumption of 30 miles per gallon over give and take roads.

The solid construction and the carefully selected materials it is built of, we feel confident, will ensure a long term of usefulness for this neat little car which, considering its low price, £200, for the chassis with tyres, or £225 complete as shown, should attract a large number of present and intending motorists who are looking for a really high grade small machine.

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Common Sense in Lancashire.

ALTHOUGH J.P.s generally are now taking a much more reasonable line in dealing with mere technical infractions of the law by motorists, one of the most outspoken utterances on the subject was made by Dr. Low, Chairman of the Bench at Leigh, Lancashire, the other day. In dismissing a speed limit summons in payment of costs, he said there was no doubt that the twenty-mile limit had been exceeded, but they had to look at the case as practical men. There was no danger to the public. They did not blame the police for placing the trap, but, personally, he thought it would have been better if it had been over a longer distance. From the evidence it appeared that the "offence" was committed on a quiet country road, with no people about; and although the police said the motor cycle and side-car was going at 31 miles an hour, the defendant said that his speedometer showed that the speed limit had not been exceeded.



"Auto." (Yellow Cover) Copyright.

A COMPARISON IN MUDGUARDS.—The above photographs give four typical examples of mudguard design. There is the flat mudguard with the valanced edge, the slightly domed mudguard with the valance and bead, and there is the much domed mudguard in which the valance is formed by the rolled edge.

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MOTOR CYCLES AT OLYMPIA.

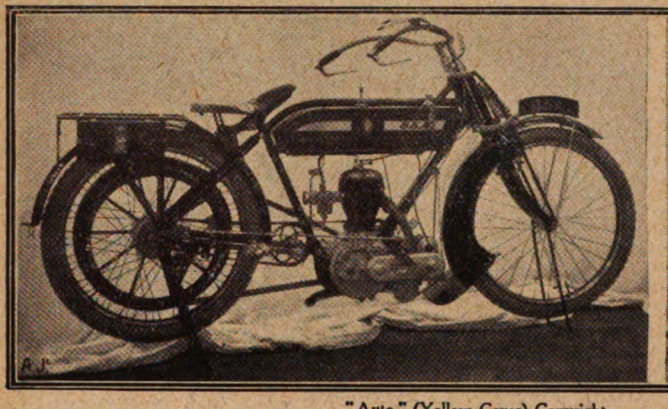
IF the cycle cars at Olympia, with which we dealt fully last week in the first part of our Show report, held such a vast fund of interest to visitors, what shall we say of the motor cycles? Surely there can be no motor cyclist yet so *blasé* that he would have been unable to take any but the keenest interest in the wonderful display. True, every year's Exhibition seems to emphasise the fact that design generally is settling down into well-established lines, along three different main paths.

There is the light-weight, the 500 cc., and the passenger class, each of which may be sub-divided into single and twin-engined examples, yet each and all differ one from the other in some respects.

The light-weight class seems to be more than holding its own; in fact, it is steadily gaining in popularity for solo work, for which it is indebted to magneto ignition and change-speed gears. It is not too much to say that the success of the light-weight as a class has been made possible by the use of two or three speed gears, and the twin light-weight in particular by the magneto, which has conferred not only increased reliability to these machines, but above all a higher engine efficiency, owing to the more perfect synchronism of the firing points.

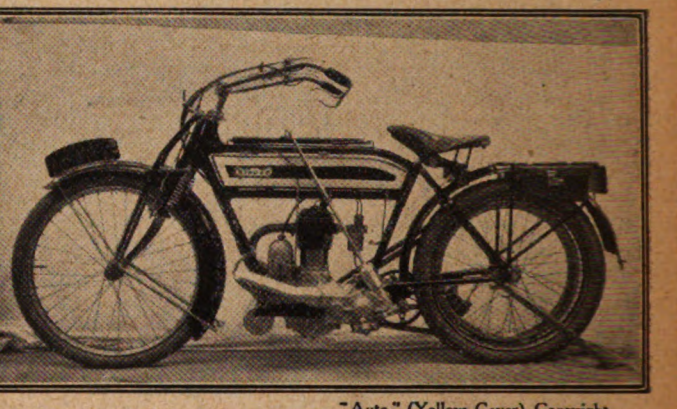
The 500 cc. single is not, as might be inferred from a previous remark, waning in popularity. On the contrary, it seems to be recognised that there is nothing quite comparable with it for general utility. It is ideal in its simplicity, is not too powerful for ordinary solo touring work, and yet has enough power for use with passenger attachments—when the demands in this respect are of an occasional and not too arduous a nature. Where the side-car is intended to be more or less of a permanent attachment, the heavy-weight scores, but is, of course, more expensive both initially and subsequently. The single-cylinder heavy-weight, *i.e.*, one of over 500 cc., seems to be coming into considerable favour—the Rudge, Bradbury, James, Excelsior, Lincoln-Elk, Quadrant, Star, New Hudson, Sun, besides other firms, are all devoting some measure of attention to such a machine, essentially constructed for passenger work.

There were signs at Olympia, we think, that the big twin is going out of favour somewhat for motor-cycle-cum-side-car purposes. This class of machine will probably feel the competition of the cycle car more than any other; this should not affect the manufacturers detrimentally, however, for it seems to us but a single step in construction from some of these combinations to a three-wheeled cycle car, a step which they should find no difficulty in taking. It must be admitted that there is little difference in price between the two types. The Morgan Runabout, for instance, can be purchased at 85 guineas, while it is quite possible, as was evidenced at the Show on more than one stand, to pay £100 and even more for a first-grade twin and side-car. The Morgan, or any other like cycle car for that matter, is infinitely more comfortable for the driver from every point of view, and is distinctly preferable to drive solo. Its cost of upkeep also, should compare more than favourably with the former.



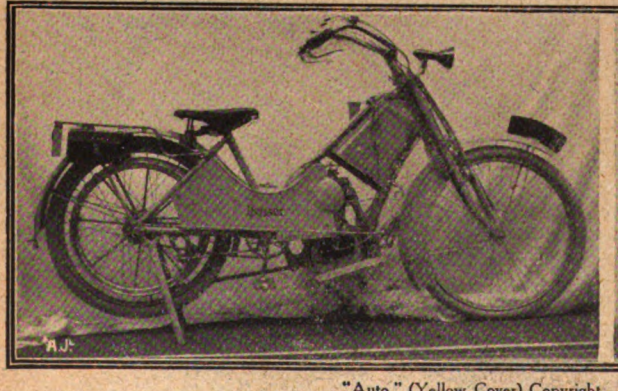
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MOTOR CYCLES AT OLYMPIA.—The 3½-h.p. B.S.A., an extremely handsome and well-finished machine.



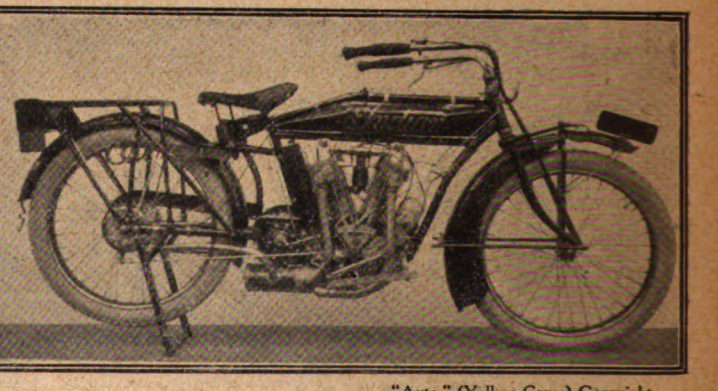
"Auto." (Yellow Cover) Copyright.

The 3½-h.p. Singer. Note the belt shield, countershaft gear, and comfortable looking footboards.



"Auto." (Yellow Cover) Copyright.

MOTOR CYCLES AT OLYMPIA.—The Hobart Ladies' Model. The lines are graceful and clean, and the dress-guarding excellent.



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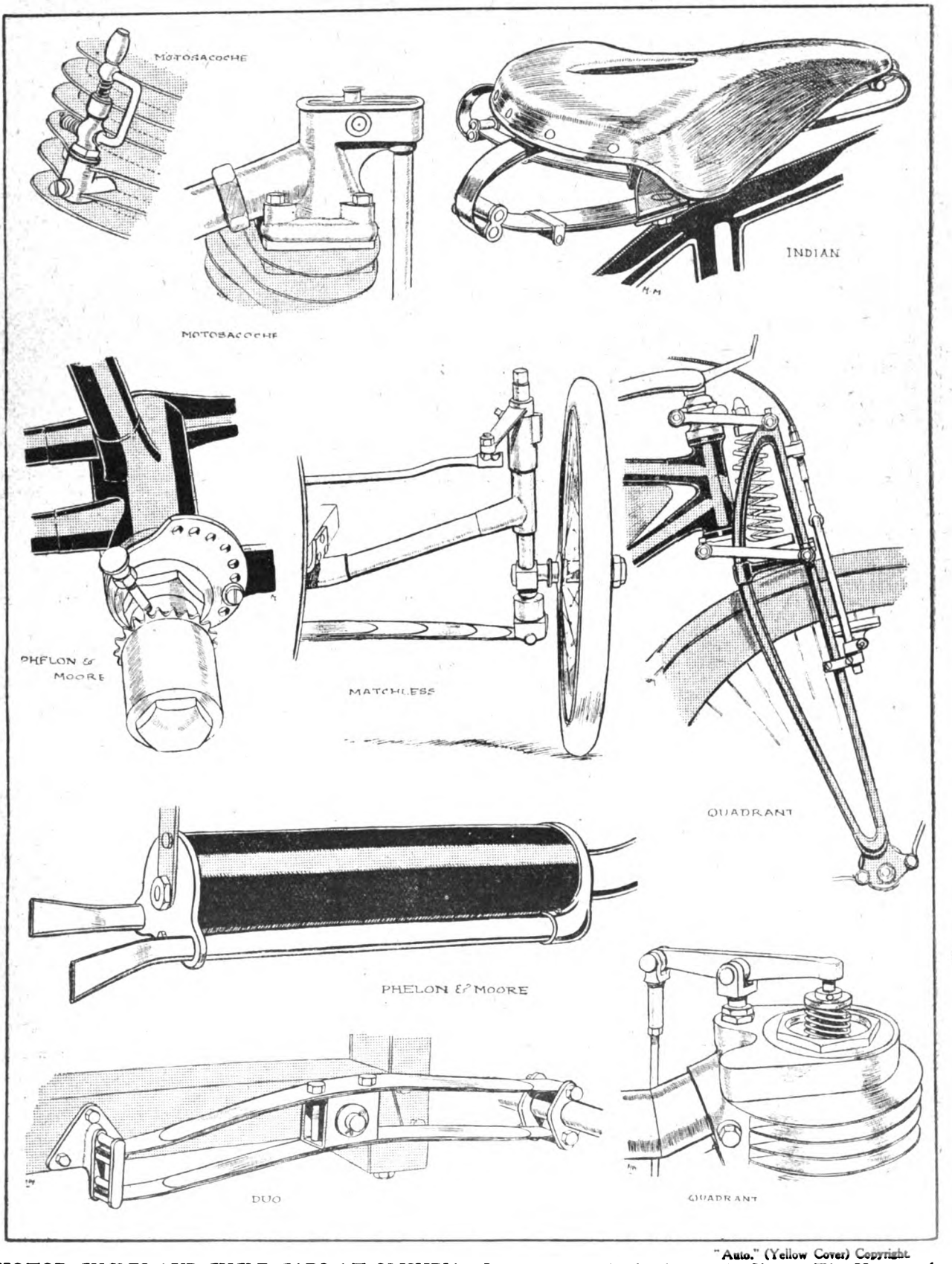
MOTOR CYCLES AT OLYMPIA.—The 7-h.p. Twin Indian, with spring frame, chain drive, and countershaft gear.

So much for the motor cycles at Olympia, as divided into classes. With regard to the trend of design, it will be most convenient, and possibly also more interesting, to deal with the various points under their respective headings rather than to attempt a description of each individual make of machine.

Price.

We were sorry to see that prices show no tendency to fall. On the contrary, in many cases they have been increased year by year. While there is some excuse for this from the manufacturers' point of view, inasmuch as improvements and additions are made in every new model, we are quite unable to see any justification for it ourselves. The improvements we speak of are merely due to natural evolution and do little to increase the cost of production.

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MOTOR CYCLES AND CYCLE CARS AT OLYMPIA.—Interesting details sketched at the Show. The Motosacoche half-compression device and enclosed overhead valve mechanism. The unusual system of springing employed on the saddle of the Indian. The new countershaft chain adjustment on the P. and M. The system of front suspension on the Matchless cycle car. The Quadrant spring forks and front wheel brake. The P. and M. new silencer. The front suspension of the Duo cycle car. The Quadrant overhead valve-gear.

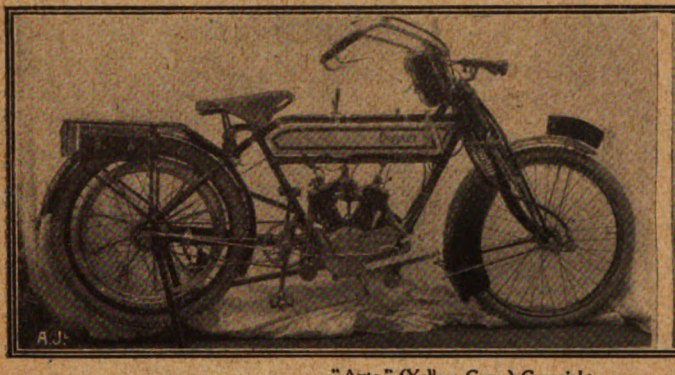
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We were pleased to notice, however, that some of the best machines procurable are at least remaining at, as they have done for years past, practically a constant figure, and the improvements during this time have been as many and as great in their case as in those where the makers have seen fit to add another £5 or so unfailingly every year.

Fine value is shown in all models of the Lincoln-Elk; the Sun, Ivy, Victoria, Connaught, and Wulfruna are also listed at prices which show that a really high-grade machine can be produced and sold at a fair profit without exceeding the limit of reasonableness.

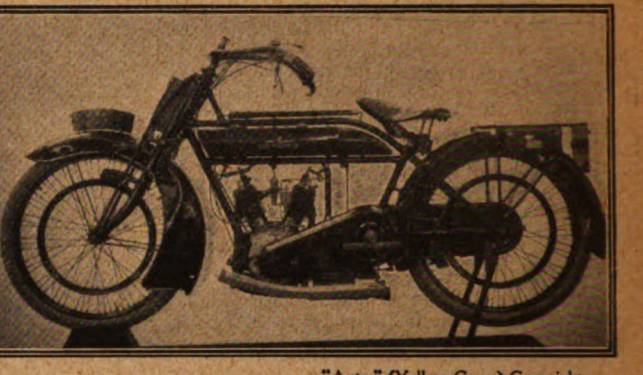
they present nothing but a smooth surface externally, making cleaning a simple matter. Two or three engines in particular which pleased us in this respect were the Ariel, Quadrant, Arno, and B.S.A.

Engines fitted with decompressors include the Ariel, P. and M., Corah, New Hudson, Motosacoche, L.M.C., Centaur, Day, Excelsior and Swift. The A.J.S., Indian, and Pope engines had detachable combustion heads, but in general this practice has been discarded by British constructors these years past. Desaxé, or offset cylinders were fairly common, we noticed that the B.S.A.,



"Auto." (Yellow Cover) Copyright.

MOTOR CYCLES AT OLYMPIA.—The Hobart 3-speed twin.



"Auto." (Yellow Cover) Copyright

The 3-h.p. Lea-Francis. A beautiful example of the very highest grade design and workmanship.

Engines.

Water cooling seems to be making headway; several examples of Green-Precision engines were to be seen, one model of the Williamson-Douglas also employs water cooling, as does the Scott, of course, and the new Stellar, which resembles the Scott in so far as it is also a twin-cylinder, two-stroke, positive-drive machine.

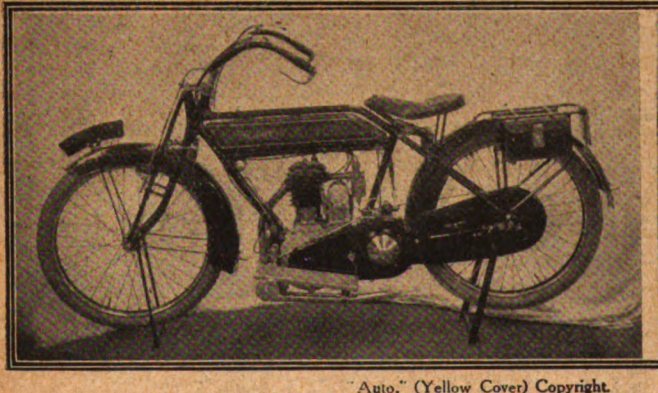
The Stellar, Wilkinson-Wooler, and Connaught are new additions to the two-stroke class, and with the Levis and Scott also at Olympia, this type of engine is well represented, both in number and quality, and seems in no danger of becoming extinct.

The engine of the Wilkinson-Wooler is extremely interesting; the cylinder is set horizontally in the frame, and is closed at both ends,

Humber, Calcott, New Hudson, Star and Pope all had something to show in this way. Overhead valves, too, were strongly in evidence. This system certainly potentially possesses a great advantage, and the Motosacoche valve mechanism should remove at least one of the principal causes of trouble usually accompanying this type of valve gear.

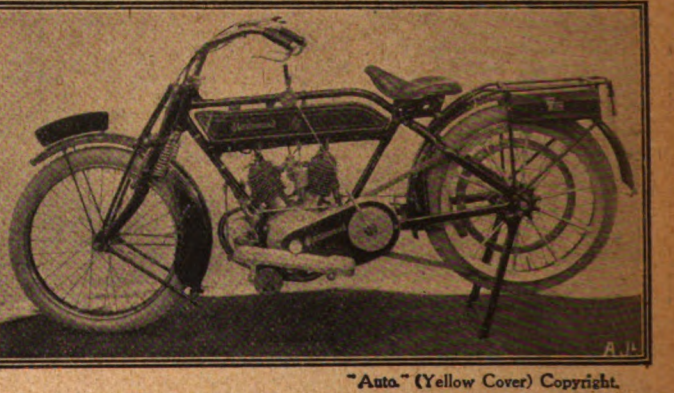
Carburettors.

There is a growing tendency to fit automatic or semi-automatic carburettors. The Senspray, Binks, Lukin, Amac and B. & B. are all well represented; the B.S.A., Triumph and F.N. fit devices of their own, the latter being fully automatic, as also are those fitted to the Indian and Pope machines.



Auto." (Yellow Cover) Copyright.

MOTOR CYCLES AT OLYMPIA.—The 3½-h.p. James, with enclosed chain drive throughout and countershaft gear.



"Auto." (Yellow Cover) Copyright.

The twin Hazlewood, with chain-cum-belt transmission and countershaft gear.

the initial compression taking place below the piston, instead of, as is usual, in the crank-case.

Lubrication has undergone general all-round improvement. There was scarcely a stand without a machine having automatic or semi-automatic lubrication, the sight-drip feed preponderating. Mechanical lubrication is gradually gaining ground; there are the Indian, the Veloce, the W.D., the Enfield, and the Wilkinson-Wooler as examples. The lubrication on the Connaught is unique in motor cycle practice, the oil being fed to the engine with the petrol *via* the carburettor. This practice is not uncommon in America on two-stroke engines for marine work, and we have also heard of it in a certain flight engine, but this is the first occasion, we believe, where it has been applied to motor cycles.

Cylinders and crank-cases are gradually becoming cleaner castings; moreover, many of the latter are now finished in such a way that

Starting Devices.

Most engines, other than "fixed" (*i.e.*, having no clutch) are provided with some sort of starting device, usually operated by the foot; the example was set by the Scott, and the immediate success on this machine led to its speedy adoption by other makers. Even machines of foreign production have seized on the idea, for we noticed that the F.N. four-cylinder machine has a "kick" starter for the easy starting of the engine by a pressure of the foot. The T.M.C. has a pull-up hand starter operated from the seat.

Frames.

Frames generally remain unaltered, except that a few more firms are adopting the bent-down top tube to give a lower riding position, though many of the oldest and best known still retain the straight tube. Also, one or two new spring frames are to be seen, as on the Grandex, Wilkinson-Wooler, Swan, and Indian, while all the

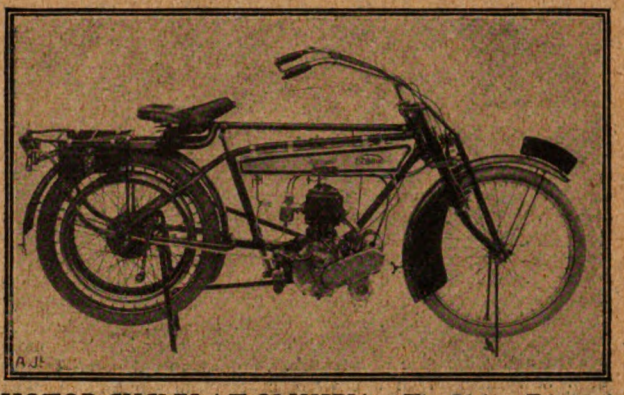
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machines present that were thus fitted last year, the Edmund P.V., N.S.U., A.S.L., T.M.C. and Bat, still retain this feature. The rear-springing of the Swan and Indian is of the laminated steel plate type, as also is the Edmund.

The last-mentioned is quite one of the best spring frames on the market, for the rider, besides being insulated from road shocks at every point of contact with the machine, is also not subjected to violent rebounds, and yet the frame of the bicycle itself is perfectly rigid, and no lateral movement is possible. We give an illustration of this machine, in which the system of springing is, for the most part, clearly shown, but it is necessary to mention, perhaps, that the seat pillar is free to slide on ball-bearings in the down tube of the frame, and has the foot-rests anchored at its lower end. The laminated springs themselves, of which there are four, have been re-designed since the last show, each now having no less than eight plates, and it is by reason of the friction engendered by the movement of one plate over its neighbour that the recoil is checked after the shock has been absorbed. Another point worthy of notice is that the springs may be adjusted to suit the individual weight of the rider.

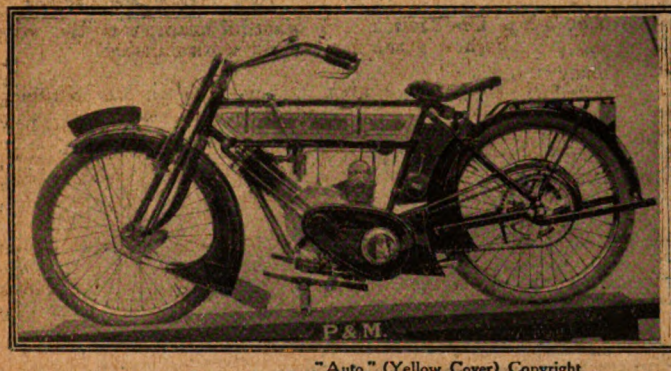
While not, strictly speaking, spring frames, the cantilever seat pillar on the Rex and Ariel are also excellent means to the same end.

Lugs for the attachment of side-cars are now often made integral with the frame on machines designed for this purpose, and were exemplified on the Calthorpe, Rex, Matchless, Williamson, Ariel, Enfield and many others.



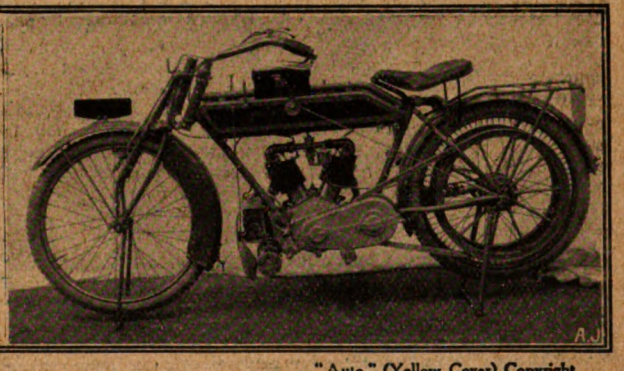
MOTOR CYCLES AT OLYMPIA.—The 3½-h.p. Edmund which was one of the best sprung machines at the Show.

cranked tubes in this position were abolished altogether. There is no reason in the world why bottom brackets should not now be made sufficiently wide to take practically straight rear forks. The design of the Ariel, Chater-Lea No. 7 (especially), Lincoln-Elk and Ivy are excellent and might well be imitated.



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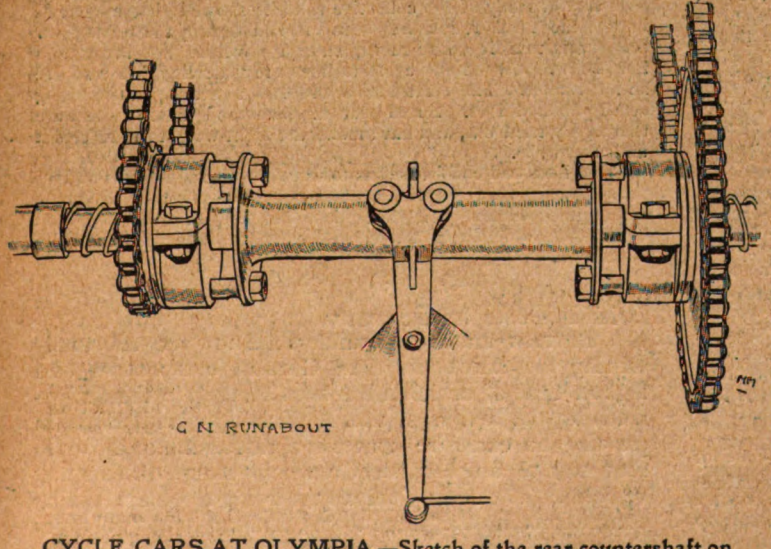
MOTOR CYCLES AT OLYMPIA.—The 3½-h.p. P. and M., one of the most successful machines for touring purposes.



"Auto." (Yellow Cover) Copyright.

The twin-cylinder Matchless, with chain-cum-belt transmission.

There seems to us to be still room for improvement in the design of frames; heavily cranked tubes, especially those taking the drive, were far too common for our liking, we think there would not be so many complaints from side-car users of twisted frames if



CYCLE CARS AT OLYMPIA.—Sketch of the rear countershaft on the G.N. Runabout. Either of the two sprockets may be engaged by the sliding dog-clutch device shown, the other running idly, and from this shaft the drive to the back wheels is by belts.

To meet this matter of twisted frames, many manufacturers are employing heavier gauge tubing and a more liberal use of liners. The latter is as it should be, but we are not altogether enamoured of the former. Weights are high enough now in all conscience, and increased weight brings in its train the necessity of higher engine power, which in turn involves additional expense and so defeats its own ends. No, what is really needed is a more scientific disposition of the present weight, as a few firms have already realised.

The trussing of the frame from the bottom of the crank-case to the back fork ends as in the Corah and Ivy, always seemed to us to be good practice, but we noticed to our surprise that the frames of the Trump are no longer built in this manner.

Wheels.

Wheels seem much as before, but we noticed an increased number of disc-adjusting hubs and one or two attempts at making the bearings waterproof. Among those fitting the former we noticed the Wilkinson-Wooler, Swan, W.D., Trump, Williamson, Singer and, of course, all Chater-Lea hubs. Tyres, also, show a small tendency toward an increased sectional diameter; more than one big twin was fitted with 3 in. tyres, and 2½ in. and 2⅝ in. sections on 3½-h.p. machines were to be seen here and there. Rear wheel spokes are, generally speaking, of thicker gauge, in view of the possibility of side-car work no doubt, and spokes, rims and hubs are in many instances no longer nickel plated. The A.J.S., Corah, Lea-Francis, New Imperial and Sunbeam, all showed at least one machine having wheels without bright parts. In the case of the Matchless, a path for the brake shoes on the front rim only had been left plated, the rest of the wheels being black, an evidence of thoughtfulness which immediately drew our attention to these machines.

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Speed Gears and Gear Controls.

There is far more in the matter of proper distribution of weight in respect to stability than many motor cyclists are aware, and several makers have appreciated this point apparently, for there is a bigger percentage of countershaft gears shown than formerly. In the case of the A.J.S. for instance, even the three-speed gear has been allocated to this position.

Change speed gears are, of course, fitted in some form or other on every stand, almost on every machine in fact, and the arrangement of the striking mechanism shows some improvement, the Triumph, as usual, taking a prominent place. The majority of the change speed levers, however, are still in a somewhat awkward position for operating readily and quickly just at those times when most necessary. What is still one of the best two-speed gears on the market and fitted to one of the most successful and high priced single cylinder machines, namely the P. and M., would be much improved, we think, if the lever were carried six inches or more forward along the side of the tank. From personal experience we know how the average waterproof coat at times militates against quick operation when the lever is in the position it now occupies.

Clutch Control.

We should like to see more machines fitted with handlebar clutch controls, though there was not wanting evidence that some makers, the F.N., A.J.S., Sunbeam, and Ariel free engine model, among others, are of our way of thinking in this matter. There is no doubt that this position has many advantages for novice and expert, tourist and competition rider alike.

Transmission.

No visitor at the Show could help being struck by the increasing use of chains for transmission. Very many makers fit up at least one model with chain-drive throughout, more perhaps make use of chain-drive from engine to counter-shaft gear, where so fitted, and thence by belt over a large pulley to the back wheel. This latter form of drive, where practicable, is almost perfect; the disadvantages of entire belt or chain-drive are eliminated and the advantages of both retained. Both chains and belts are better protected than formerly; every maker, indeed, seems to have realised the necessity of affording some provision against dust, mud or wet. The Bradbury chain-cum-belt model was quite one of the best examples at the Show in this respect. Where chain-drive is fitted throughout, chain-cases, often affording an oil-bath, are not uncommon, several machines exhibited being exceptionally good—the beautiful little Lea-Francis, the Sunbeam and the A.J.S., for instance.

But whether completely enclosed or not, practically all chains are given at least some protection, and it was needed. Shaft-drive was exemplified by the F.N. and T.M.C., as in previous years, and also by a newcomer, the Stellar.

Mudguards.

The mudguards are more effective, too, the width has here and there been increased, side flaps are practically universal, and in some instances, though not enough by a long way, part of the back guard can be swung clear of the remainder for ease in tyre repair. It is really a pity this practice is not more general, but among those who do make this a feature we noticed the Moto-Reve, F.N., Humber, Lea-Francis, and Singer. On the O.K. the back mudguard and carrier may be dropped complete by undoing one thumb bolt, while the rear portion of the Centaur mudguard may be lifted and locked to the carrier. Mention must also be made of the specially good mudguards on all the Douglas machines and also on the New Hudson side-car model, the Lea-Francis and the Brough, the latter having wide guards provided with gutters, and without stays to interfere with tyre manipulation.

Front Wheel Stands.

Front wheel stands are at last in the majority, rendering it now a comparatively easy matter to get at the front tyre when necessary. But why do ladies' machines have to forego this convenience? We are not saying there were none so fitted at the Show, but if so we certainly did not notice them. Take the neat little Hobart, for instance, the only thing lacking to make it an ideal lady's mount was the addition of this item. On the other hand, the front wheel stand on the Lea-Francis was distinctly good, forming as it did an undershield to the power unit when "up." On the Swan, the one stand was made to serve both back and front wheel by being placed under the centre of gravity of the whole machine.

Tanks.

Tanks and their appurtenances are rapidly nearing a state of perfection, but we still think that some of those of continental manufacture, though the makers have assimilated to their own advantage many of the best points in British design, are able to teach us something. Riveted brass, for instance, is preferable in our opinion to soldered sheet steel for tanks, and the complete separation into two units of oil and petrol tanks is another point in their favour.

Filters are not yet universal, but are fairly common in some form or other. Gauges are fitted to both oil and fuel compartments with but very few exceptions and all tanks now have filling hole caps of reasonable proportions. Great attention has also been paid to their proper support in the frame. On the Ariel, the tank is secured to brackets on the middle tube of the frame, and the tank, together with the tube, may be removed bodily by undoing two bolts. Provision has, in some cases, been made to ensure that warning is given to the rider when his supply of petrol is running low. This generally takes the form of a kind of baffle plate which traps some of the liquid and holds it in reserve till such time as the ordinary supply gives out. Devices to this end are commendable, for the ordinary glass tube gauge is not always of much use in the dark.

Tool Bags.

Tool bags of the pannier type are, on all the best class of machines, supported in metal frames, making a sound and neat job. Top-tube bags, as used on the Bradbury for some time past, are also more in evidence. In this position they are certainly very accessible, and are under the eye of the rider at all times; moreover, there is nothing to restrict their reasonable capacity. A neat method of carrying one of the tool bags was to be seen on the Lea-Francis, where it occupied a snug position in the upper part of the girder front forks. Fastenings on tool bags have not, for the most part, received proper attention; straps and buckles should be strictly taboo, straps soon wear out, and buckles are altogether too fiddling, especially when one's hands are numb, as they oft-times are when riding.

Neatness and Cleanliness.

Most firms are beginning to pay attention to these points. Frames have in several instances been subjected to a rust preventive process before enamelling, the Premier and the Wulfruna for example. Many "all-black" models were exhibited and others had had their plated parts eliminated here and there. Plated coil springs soon lose their pristine lustre and we noticed that many of these are now enamelled. The "all-black" models seem to lose nothing in the matter of appearance, as witness the A.S.L., James, Sunbeam and Lea-Francis, than which there were no smarter machines in the Show. If this is so when new, the advantage will be still more on their side after a few months' wear.

Handlebars were less disfigured by control wires than has previously been the case and the manner in which this was accomplished on the Singer was particularly neat, the cables running through guide tubes attached to the handlebars, thus obviating weakening of the latter by drilling.

Ladies' Models.

Just a word about the ladies' mounts. It was a pity that a few more firms did not see fit to stage these, especially some of those firms who have won quite a renown therefor. We should have liked very much to have seen the Levis, for instance. Among those that were shown, the Hobart model was quite a taking little mount, the weight was where it should be and the riding position good. The Singer, Ivy and Brough models were also such as to attract the favourable notice of prospective lady owners.

Summary.

A careful study of the collective exhibits showed that a general improvement all round has been effected during the past year. Standardisation is conspicuous, though novelties are many and freaks few. Two-stroke cycle engines are "arriving," as also are spring frames. The transmission problem is settling down along clearly defined lines. Speed gears are many and most of them are thoroughly tried out, and have made the light-weight the success it undoubtedly is.

Cleanliness and comfort seems to us to be the present outstanding need, and signs are not wanting that this is the principal line along which improvement will take place between this and the next Cycle and Motor Cycle Show, so far as the latter machines are concerned.

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British 'Buses in Germany.

BRITISH motor 'bus builders are now very effectually turning the tables on their German competitors, and a good deal of criticism has been aroused in the Fatherland by the action of the Munich civic authorities in granting an exclusive concession to run motor 'buses in that city to an English Company using British-built vehicles. The same Company is trying to obtain similar concessions in other large towns, and no doubt when our German friends have become better acquainted with the vehicles, they will realise that their supremacy in the motor 'bus line is a thing of the past.

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CORRESPONDENCE.

Self-Starters and Petrol Economy.

SIR,—The increase in the price of petrol is giving the owners of petrol-driven commercial vehicles food for serious thought.

The average owner of such vehicles hardly realises the enormous saving which can be effected in his petrol bill if his driver would only stop the engine every time the vehicle is stopped, and re-start it when they wish to proceed again on the journey.

This can only be obtained by having a vehicle fitted with a self-starter, as the average driver will certainly allow his engine to continue running in preference to getting out of the driving seat and cranking the engine every time he makes a call.

We have been carrying out a number of exhaustive tests to ascertain the amount of saving to be effected, and we give herewith some very interesting and instructive results.

One of our 30-cwt. self-starting commercial vehicles was employed delivering parcels on rounds which involved a considerable number of stops. The period occupied by the test was six days.

Total mileage covered in six days, 376¾; actual petrol consumption, 13 miles per gallon; total petrol consumed in six days, 29 gallons; average cost of petrol used at 1*s.* 2*d.* per gallon, 33*s.* 10*d.*; average number of stops made in one week's run, 930; average time of each stop, 2 minutes; total stopping time, 1,860 minutes.

The 16-h.p. 4-cyl. self-starting Adams engine used on this van will run standing for 24 minutes on one pint of petrol at 260 revs. per minute.

If the engine had been run during every stop, 77½ pints, or 9⅝ gallons, of petrol would have been consumed during the week's work.

The actual saving effected by the self-starter on this vehicle amounts to 11*s.* 3*d.* per week in petrol alone, leaving out the saving in lubricating oil and wear and tear.

A total yearly saving in the petrol bill of £29 18*s.* is thus effected. With a small fleet of, say, 10 such vehicles, a saving in petrol of £229 a year could be effected.

One does not require any further evidence than the above figures to prove the economy of having a self-starter fitted on a commercial vehicle which makes a number of stops in its daily journey.

ADAMS MANUFACTURING CO., LTD.,
A. H. ADAMS, Managing Director.

Motor Speeds at Brooklands.

SIR,—Various speed records are being claimed at the present moment for cars at Brooklands. It may be of interest to those of your readers interested in such matters to know that the following record was achieved by a Fiat in 1908 in the Napier-Fiat match, when a Fiat car, matched by me against a Napier car of Mr. S. F. Edge's for £250 a side, won:—

"A complete circuit of the Brooklands track, approximately 2¾ miles, at an average speed of 121·64 miles per hour."

The above is certified by the Brooklands Club, and also by the Royal Automobile Club, the time having been taken by their official timekeeper.

To attain this average speed, having regard to the nature of the track, it is fairly obvious that at times the car must have been running well over 130 miles an hour.

D'ARCY BAKER,
Managing Director of Fiat Motors, Ltd.

SIR,—On November 19th, I authorised the Talbot Company to state that the speed of 109·43 m.p.h. attained by their car for a flying lap at Brooklands was the fastest speed recorded for a flying lap in the certificate book of this Club.

Before authorising this statement I went through the book carefully to satisfy myself that it was perfectly correct.

I have, however, since been informed that the F.I.A.T. Company hold a certificate for a flying lap at 121·64 m.p.h. attained on June 8th, 1908.

As no certificate to this effect appeared in the certificate book of this Club, I was for a time in doubt as to whether such certificate had ever been issued, but in face of the statement, I have had a careful search made in the back correspondence of this office, and I have now found a letter signed by Mr. Rodakowski, the Clerk of the Course, stating officially that this speed had been attained and had been properly timed with the electric chronograph of the Club.

The same letter contains a statement that the Napier car on the same date attained a speed for a flying lap, of 113·01 m.p.h.

These two latter speeds are therefore officially recorded, and at present stand as the two fastest officially timed speeds for a flying lap made on the track.

F. LINDSAY LLOYD,
Brooklands Automobile Racing Club. Clerk of the Course.
November 29th, 1912.

Re Victor Tyre Test.

SIR,—It gives me pleasure to reply to the published query in your last issue of Col. Harrison Hogge as to whether I, as a member of the R.A.C. and of Brooklands will accept the edict of the Club which has banned Victor tyres from contesting and all competitors from using these tyres in all competitions including Brooklands.

My answer is simply that I do not accept this edict. When racing at Brooklands I pay competitors' entrance fees, and shall refuse to allow the Club to dictate to me as to what tyres I shall use. My racing car is fitted with Victor tyres. I do not intend to discard the use of these tyres, nor having run them to the gates of Brooklands, will I allow them to be taken off and replaced by tyres I have less confidence in. If they are the conditions which the R.A.C. and the B.A.R.C. are going to insist upon both for races and practice, the situation becomes ridiculous and intolerable.

I have done my utmost during the past few years to further the interests of Brooklands, but I cannot allow myself to be dictated to as to what tyres I may, or may not use, and should the authorities insist upon taking such drastic steps in this matter, I should, although reluctantly, be compelled to tender my resignation of membership.

71, Eaton Square, W., November 29th. EXMOUTH.

SIR,—We read with much interest and pleasure the letter which appeared in your issue of November 16th from Lord Exmouth. That letter excellently expresses our own view upon the present situation in the motor and accessory industry as it affects the private motorist. Undoubtedly, the motorist, in self-defence, will presently be compelled to take action. Just what that action will be we, of course, do not know, but the suggestion made by Lord Exmouth, will, we expect, be specially noted by the A.A. and M.U.

So far as we are directly concerned with the proposal, we can say at once that we would be very willing to be a party to it or any other scheme that would enable us to demonstrate the qualities of Victor tyres, and our desire to remove those irritations of which Lord Exmouth justly complains. There is no reasonable limit to which we are not prepared to go in order to satisfy motorists that Victor tyres are better value than any others, nor is there any fair condition we would reject in order to safeguard the interests of our customers. Already, as is generally known, we guarantee our all-rubber Victor tyres for 1,000 miles more than any other make of tyre is guaranteed, and have deleted all the usual "saving clauses" from the document.

Therefore, if the A.A. and M.U. or any other motoring organisation, is prepared to move in the direction so clearly indicated by Lord Exmouth, it can rely upon our ready co-operation. Obviously, however, the first move must come from the organisation concerned.

We should be interested to read the views of any members of those organisations or private motorists who might be interested in the development of such a scheme. Perhaps, indeed, Lord Exmouth would be good enough to elaborate it a little for our own information, and that of many others to whom it may appeal.

We thank him very cordially indeed for his complimentary references to Victor tyres, and think he can always rely upon their standard or quality being fully maintained, however large the measure of our success may be.

W. YARWORTH JONES, Managing Director,
Challenge Rubber Mills.

The Taxi-Cab Strike.

SIR,—I regret to find that there is some misapprehension as to the attitude of the Owner-Drivers Association in the event of a strike of men belonging to the Cab Drivers Trade Union on the question of the increased charge for petrol owing apparently to a message of sympathy from some owner-drivers having been read at the union meetings last week.

May I explain that this was only from the few owner-drivers who are members of the men's union.

The attitude of the Owner-Drivers Association and of the independent men in sympathy with it is that they will under no circumstances strike themselves or countenance such a proceeding.

Whatever the difficulties, and we admit they are great, a strike can only do enormous harm to the trade. Should the men in the union be so ill-advised to leave their cabs at home there would still be nearly 2,000 cabs and 3,000 drivers on the streets which we hope would prevent any serious inconvenience to the public. The Owner-Drivers Association necessarily takes neither side in such

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disputes. I certainly will not endeavour to gain its ends by sacrificing the public convenience.

J. EDWARD DAVIES, Secretary.

The Motor Cab Owner-Drivers Association,
20, Buckingham Street, Adelphi, W.C.
November 29th, 1912.

Taxation of Old Motor Cars.

SIR,—Some while ago it was reported that the R.A.C. intended approaching the Treasury with a view to obtaining some measure of justice for the owners of old cars. The taxes are due next month, and nothing has been heard of any rebate.

At a meeting of Portsmouth district motorists interested in the subject it was pointed out that, taking the petrol tax into consideration, and the loss of market value to any old cars under the taxation; many old cars of at all high horse-power will have *paid about their own value in taxes* next year if things go on as now.

At the meeting in question the following resolutions were carried unanimously:—

(1) Unless a rebate for 1913 is allowed to cars of three years old or over, all old car owners who are members of the R.A.C. or associates thereof will resign.

(2) Such old car owners as are members of motor clubs affiliated to the R.A.C., will either resign from their clubs, or pledge themselves to work to get their clubs affiliated to the A.A. and M.U. instead of to the R.A.C.

(3) A copy of this resolution is to be sent to all the principal motor papers, and all old car owners who sympathise are requested to send post cards signifying their agreement or otherwise to the editors concerned, and all editors in question are asked to note and publish results, bearing in mind that it is neither to the interests of old car owners, second-hand dealers, or even of the Treasury itself that motorists of moderate means should be specially singled out for exorbitant taxation. We are unanimously of opinion that the R.A.C. is in need of encouragement in looking after the needs of motorists at least as zealously as it looks after the interests of the S.M.M.T.

SOME HAMPSHIRE OLD CAR OWNERS.

[Surely our correspondents cannot appreciate the position of the R.A.C. If it rested with the Club the matter would have been adjusted long since. Why the Club should be selected for penalisation under existing conditions is beyond our comprehension. —ED.]

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—Members are warned to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Roller working and full width of road under repair 7 miles north of Grantham; roads are in a very dirty condition in the Grantham district.

LAKE DISTRICT.—*Keswick–Ambleside Road.*—Re-metalling half-width at Thirlspot between 5th and 6th milestones from Keswick. At Ambleside a bridge is being widened, which work will take a few weeks to complete.

LANCASHIRE.—*Preston–Blackpool Road.*—Full width in bad condition in Long Lane, Ashton, 2 miles west of Preston.

Blackpool–Poulton Road.—Members are warned to drive carefully through Poulton-le-Fylde and district.

Preston–Wigan Road.—Full width in very soft condition on Walton Hill, 1¼ miles south of Preston, also on the hill entering Walton-le-Dale from the south side, special care is necessary.

Very rough surface between Bamber Bridge and Standish.

YORKSHIRE.—*Malton Sherburn Road.*—Under repair full width 1½ miles from Malton, roller at work; loose metal half-width, left at night.

Wetherby.—Half-width of road closed in town of Wetherby for about 50 yards for repairs to sewerage, well protected at night; also re-metalling full width of road between the 3rd and 4th milestones north of Wetherby.

Otley–Addingham Road.—Re-metalling full width between the 5th and 6th milestones from Otley; will be in hand for fourteen days.

Wetherby–Harrogate Road.—Re-metalling full width between the 2nd and 3rd milestones from Wetherby.

Burley-in-Wharfedale–Ilkley Road.—The road about 1 mile from Ilkley is being re-laid with limestone and grit three-parts across the road, care is necessary; also a control may be working on this road, and in various parts of the city of Leeds.

EAST.

Royston–Newmarket Road.—Water is likely to be under the Railway Bridge at Pampisford Station.

SOUTH.

BATH ROAD.—Members are warned to drive slowly through Hounslow and Colnbrook, especially between Harlington Corner and Hounslow Barracks; also through Maidenhead. Under repair between Calcot and Theale; also Church Street and Station Road, Twyford.

LONDON DISTRICT.—On account of timing operations, special care is necessary at: Regent's Park Road, N.W.; near Church End Station, Finchley; Golder's Green; between Redcliffe Gardens and the Boltons, Earl's Court Road, S.W.; on the road that crosses Clapham Common from top of Balham Hill to Battersea Rise; Victoria Embankment; Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; Croydon; Purley; between Wimbledon and Ewell; Hounslow – Staines; Hounslow – Colnbrook; Harlesden; Maida Vale; Highgate–Holloway; Lewisham; Sudbury tram terminus to Harrow Hill.

SOUTHAMPTON ROAD.—Controls working at night through Egham. Under repair between the Wheatsheaf Hotel and Sunningdale Station; road in bad condition between Holloway College and Wheatsheaf Hotel, and throughout Bagshot village.

SOUTHAMPTON DISTRICT.—Tram-lines under re-construction from the junction of Commercial Road and the London Road; also in High Street Shirley, and Waterloo Road, Freemantle. Re-metalling full width between Mapledurwell and Basingstoke.

SURREY.—*Kingston–Leatherhead Road.*—Members are warned to slow down between Chessington and Hook, as a control may be working.

Esher–Guildford Road.—Re-metalling at Pain's Hill, Cobham, full-width; special care is necessary at night.

Portsmouth Road.—Flashlight controls are likely to be working between Kingston and Esher.

Eastbourne Road.—Members are warned to drive slowly, as a control is likely to be working near Kenley Police Station and the Gas Works, Whyteleafe.

WEST.

SHREWSBURY DISTRICT.—*Hereford Road.*—Re-metalling full width of road at Bayston Hill.

EXETER.—*Bridgwater Road.*—Foundations are being laid for about 300 yards, full width, one mile north of Taunton, lighted at night.

Bridgwater–Glastonbury Road.—Foundations are being laid for 300 yards, full width at Cossington, 4 miles N.E. of Bridgwater.

GLOUCESTER–BRISTOL ROAD.—Re-metalling whole width of Hardwick parish, roller working, clear at night.

GLOUCESTER, CHELTENHAM AND OXFORD ROAD.—*Andoversford.*—Bridge here is being rebuilt, half width closed to traffic, caution is necessary at night, protected by lights.

MIDLANDS.

COVENTRY ROAD.—Roller at work between the 28th and 29th milestones through Markyate whole width. Stonebridge-Kenilworth road, roller working at Moulder's Bridge on the Kenilworth road three-quarters mile from Stonebridge, full width.

STONE–STAFFORD ROAD.—Snow about 4 inches deep in and around the district.

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Motor Traffic in Piccadilly.

THE suggestion by Sir J. Rolleston in the House of Commons last week that, with a view to relieving the increasing flow of traffic in St. James's Street and Piccadilly through the narrow passages at Marlborough Gate into St. James's Park, a new road should be made connecting Waterloo Place with the Mall, did not meet with sympathy from the First Commissioner of Works. In reply, Mr. Wedgwood Benn pointed out that the opening of the Mall through to Trafalgar Square had proved a considerable advantage to the traffic which formerly used Marlborough Gate and Pall Mall. It was considered that there were great objections to a new road from Waterloo Place to the Mall at the point suggested, as this would cross both Pall Mall and the Mall at right angles.

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The National Society of Chauffeurs

· OFFICIAL NOTICES ·

President.

The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; LORD MONTAGU OF BEAULIEU; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.

Messrs. P. L. H. DODSON, W. M. LETTS, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.

Deputy.—Mr. A. HOLMES.

General Secretary.

ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. Holmes, deputy-chairman (presiding); Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee: Messrs. Moores, Adey, Tyler, Emmerson, Holland No. 2, Shaw, Rawson, Dean, Wallis, Withill and Kahn.

The minutes of the previous meeting were read and confirmed.

The secretary reported that a low trick had been played upon the Society by some person stealing four balls from the bagatelle table, and several packs of cards. This was very deplorable when it was considered that the property belonged to the members. He, the secretary, had an idea that he could place his hands upon the culprit, and a notice had been placed on the board asking for the return of the balls. If the notice failed to have the desired effect, he, the secretary, would take strenuous steps to reclaim the club's property.

The committee expressed an opinion that the person guilty of so mean a theft should replace the property, and cease to visit the clubroom.

Several important questions regarding the clubroom were debated, and Mr. Cates and Mr. Wallis were elected to make inquiries and report at the next meeting.

Letters were read and the secretary instructed as to replies, from Mr. Arnold, the Goodrich Co., Ltd., the Society of Motor Manufacturers and Traders, and Mr. Appleton.

The burglary and fire insurance on the premises was discussed, and it was decided to accept the terms of the Sun Insurance Co.

A vote of thanks was moved and passed unanimously to the President, the Hon. Rupert Guinness, and to the proprietors of the *Autocar*, for their kind presentation of books for the library.

Organisation was discussed, together with a letter from Mr. Gaspell of the British Legation, Brussels, with a view to affiliation with a club in that country.

Review of Events.

The unfortunate shooting affray whereby Sir Edward Henry had a lucky escape from a serious wound, is another example whereby persons holding public positions are held to be responsible for any action of the subordinates over whom they act as chief. Sir Edward would know nothing about the refusal of the licence to the poor fellow beside himself with the idea that Sir Edward had injured him. Sir Edward Henry has a difficult position to maintain, and it is beyond dispute that he is the ideal man for the office of Police Commissioner. On several occasions it has been my duty to approach him in the interests of men holding police licences, and on every occasion has he given the appeal his serious and just consideration. Therefore, in wishing Sir Edward a speedy and complete recovery, I feel sure I am voicing the wish of every member. Arising out of this case, it is remarkable that no one cares to claim the prisoner as belonging to their class. The first report was to the effect that Sir Edward had been shot by a "chauffeur," later a "cabman." This brought a denial from the President of the Cab-drivers' Trade Union. Report said he was a motor 'bus driver; again a disclaimer from the powers that be in the 'bus business. Surely the heads of the trade unions do not anticipate any trouble from the police because a man bereft of his senses injured their chief.

Public opinion is being manufactured against the motorist to an alarming degree, and it behoves owners and chauffeurs' societies to watch any attempt to make by-laws in regard to street traffic. The ordinary man in the street has a fixed opinion in the matter, and will use it if occasion arises without considering whether his action is justified. The other day in Grosvenor Place an elderly man stepped off the kerb, looked both ways, started to cross the road. Having got a step over the crown, he saw a cart approaching. Now, to the looker-on, he had plenty of time to land safely, but instead of going on, he turned back, to find a motor car bearing down upon him. The driver put on his brakes, and narrowly missed knocking the man down, a very near thing indeed. A well-dressed man, directing his remarks to me, said, "Dear me, that was close. Almost another victim to the awful death-roll through motor traffic." As we were going in the same direction, I thought it would be useful to obtain his opinion of the circumstance, and asked who he thought was in fault. "Decidedly the driver of the car," was the reply. "Did you see the man attempt to cross the road?" was my next question. "Yes," said he, "I saw the whole occurrence." "Then," said I, "you take the wrong view of the case. Surely you will admit that the man had ample time to have crossed in front of the cart." "Yes," being the reply, I remarked that I considered the driver of the motor car had displayed sound judgment, and proved that he had the car under proper control. Otherwise the pedestrian would have been killed through his own folly in turning back. My new-found friend thought for a moment, and then said "You have the best of me. I am now convinced that the fault lay with the man crossing the road." My point is this. The public are only looking at the traffic problem from one point of view, and the sooner our motoring Press sets out to educate the public to glance at the question from both sides, the better for the motor industry.

Accepted for Membership.

Henry W. G. Deeks, Gravesend	Arthur J. Nankivell, Horsham
W. G. Tarr, Hampstead, N.W.	Alexander Robertson, Kirkcaldy
James W. Ramsey, Southsea	John J. Clarke, Rathfarnham, Co. Dublin
George Vesey, Sheffield	Albert H. Harper, St. John's Wood, N.W.
Herbert Filby, Bethersden	
Harry Bryan, Coleshill	

Applications for Membership.

Alexander G. Easter, Braintree	Alfred C. Beavin, Glasgow
John E. Webber, Brentford	Charles Huffer, Biggleswade
John Hannell, Greenwich, S.E.	Robert Pentland, Airdrie, N.B.
Samuel Wright, Putney, S.W.	T. V. Johnson, Bromley, Kent
William H. C. Wall, Basingstoke	Arthur R. G. Stockley, Mitcham

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

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Chauffeur's Experiences



CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

106.

EASY STARTING ON THE MAGNETO.—Many of my friends have done me the honour of discussing with me my articles on the recent Olympia Show. While they were in agreement with most of what I said, they all, without exception, were of the opinion that as a chauffeur, I was quite wrong in deprecating dual ignition. Not until I had actually converted the engine of a car that was noted to be very difficult to start, into one that starts easily on the magneto ignition only, and thus had demonstrated that what I had argued all the evening was borne out in practice, were those present convinced that I had good reason to call dual ignition systems unnecessary complications. The natural consequence of this little demonstration was that I received a large number of "invitations" to try my hand on other engines that are difficult to start, especially now that in the morning, at least, it is bitterly cold. As far as possible I accepted and did my best in the interests of my friends; some of the engines I saw to, now start quite easily, while others do not. But in every one of these cases of apparent failure I could trace the difficulty to a cause that had nothing whatsoever to do with the ignition. And that is just the point. When an engine that is not fitted with an auxiliary accumulator ignition, does not start easily, one is all too liable to keep on turning the handle until it does start, and in the end call out: "That is the worst of those cheap cars that have a magneto only." But the difficulty, as a rule, is only in the morning, when the engine is cold, so they do not trouble about it.

The more I investigate the question of starting troubles, the more I come to the conclusion that the absence of an accumulator ignition is only very rarely the real cause of the difficulty. Has it never occurred to you, who blame the magneto for all the hard work you have to go through in the morning, that, if the magneto were the cause of the trouble you would have the same difficulty all day long? And yet, throughout the day, your engine, when warm, will start with the first pull up of the handle, and with your switch on the magneto-side of the coil. That shows clearly that the magneto is not to blame, because it makes no difference to the generating power of the machine whether the magneto itself is cold or otherwise. I should advise all those chauffeurs whose engines will start easily on the magneto when warm but not when cold, to see that they have a rich mixture for starting, and that their engines are otherwise in good condition. Flooding the carburettor does not necessarily produce a rich mixture, especially on a cold morning like those we are having just now. Not even an injection of petrol into the cylinders or induction-pipe will always do it, simply because the temperature is not favourable for vaporisation of the spirit. The best thing to do in this case is the old dodge of artificially heating carburettor and induction-pipe by means of a towel or similar article dipped in hot water and winding it round the inlet-pipe. Better still is to drain out the cooling water and fill up with hot water. This will also get you over the difficulty of sticking pistons owing to gummed-up oil, and, to my mind, it is better than injecting paraffin.

If, however, all this is of no avail, it is fair to presume that the ignition is to blame for the difficulty. In cases of this kind I always look at the plugs first. It is marvellous how little importance is attached by the average chauffeur to the adjustment of the points. There seems to be an idea abroad that a wide gap will fire the charge easier than a small one. The reverse is the case, and the points of the plugs should be set at 0·4 mm. or approximately the thickness of a thumbnail. To have the points of all the plugs set correctly is not only conducive to easy starting but is also a great help to the engine when running slowly, and especially when pulling slowly on top gear. In many cases I have found that setting the plugs correctly has cured all the starting trouble.

But I admit that in most cases, where the fault was in the ignition system, I have been able to trace it to the contact-breaker of the magneto. And here I am up against no less an authority than the magneto manufacturers, who are never tired to impress upon you that the platinum points, when fully open, should be 0·4 mm. apart, not more and not less. That is where I disagree, and this is what many of my friends call my "secret" of making an engine start easily. It merely consists in opening out the gap of the contact-breaker to some small extent, which must be found out by trial and error. I have found that almost any engine starts easier, runs better, and is certainly more flexible when the gap between the platinum points is wider. I have run engines with gaps as wide as 0·75 mm., *i.e.*, nearly twice the opening recommended by the makers, but that was an extreme case; 0·6 mm., or thereabouts will be found to work best with an average engine.

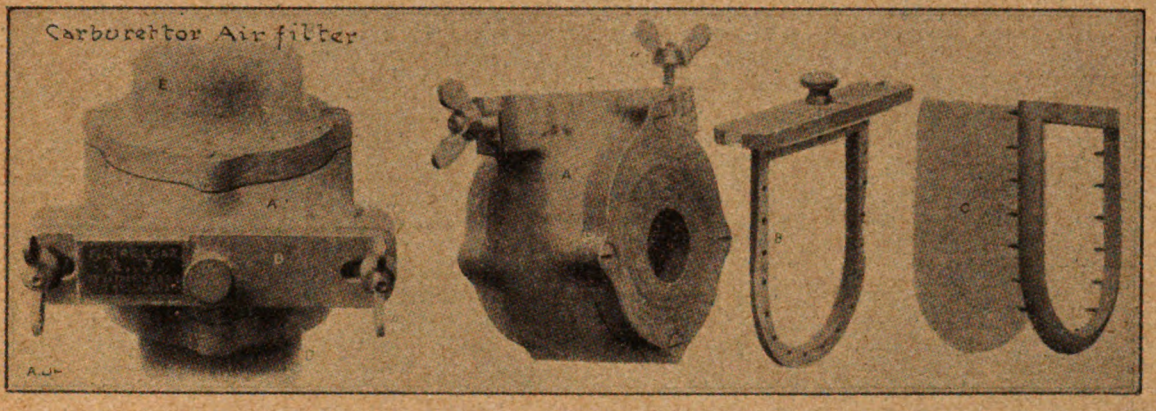
With this gap I have found that any engine which is otherwise in good order starts as easily as one could wish for, and if the wider gap has any influence at all on the running and pulling of the motor, it is of the kind to which nobody objects, because it tends to improve it.

N.S.C. 16.

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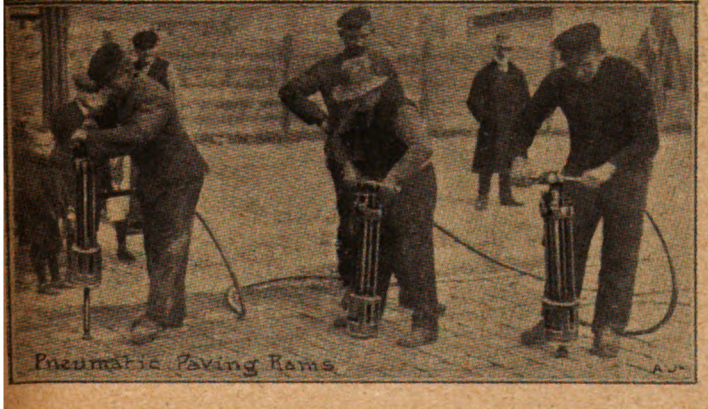
FOREIGN MISCELLANY.

Air-filters for the carburettor.—We have frequently advocated the use of some filtering device for the air-intake of the carburettor, as the amount of dust drawn into the cylinders must be quite considerable, more



especially during a dry summer. We illustrate a device of this kind which is intended to be attached to the air-intake. The screen is very easily detachable, as is shown in the photograph, but the area of the whole hardly seems great enough to prevent rapid clogging and increased resistance to the air-flow.—*Omnia.*

Pneumatic paving-rams.—On the Continent, as most of our readers are doubtless aware, many of the streets in towns and villages are paved with stone setts or cobbles. When laying these, the labour of tamping them down firmly into the layer of sand immediately underneath, which serves as a packing material, is quite considerable, and has up to the present always been performed by hand. In Germany, a pneumatic ram has recently been

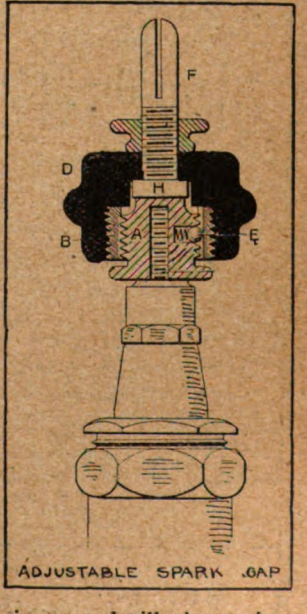


introduced to do this work, and has proved itself both economical and efficient. The compressor plant consists of an 18-h.p. benzol motor and a single stage compressor capable of delivering 70 cu. ft. of air per min. at a pressure of 90 lbs. per sq. in. The motor can be coupled to the wheels of the vehicle carrying the plant, so as to make the whole self-moving. The rams make about 90 strokes per min., and it has been found that in a nine hours' day one man can tamp down 1,400 sq. ft. of stones, compared with 325 sq. ft. when employing the old hand-ram.—*Allg. Automobil Ztng.*, Berlined

Hot soldering-iron to start screw.—The application of a good, hot soldering-iron to the head of a small screw that is hard to start will sometimes help matters by disturbing the rust between the metal surfaces. An overnight soaking with kerosene, following the use of heat, will loosen all but the very worst cases.—*Motor World, N.Y.*

Rubber elasticity *v.* compressibility.—It seems hard to realise that rubber, which can be squeezed or stretched out of shape with the bare fingers, is practically incompressible; but it is true. It is elastic, not compressible. If a depression is made in a piece of rubber by applying pressure to its surface, a volume of rubber exactly equal to the volume of the depression will be raised, just as dipping the hand in water will displace a volume of liquid equal to the immersed volume of the hand. Confine rubber, however, so that displacement is impossible, and the familiar softness will disappear. This is the reason why solid rubber tyres are made with as small a quantity of rubber as possible confined between the flanges, for this rubber has little cushioning effect, only the rubber which is free to expand being of any use for absorbing vibration.—*Motor World, N.Y.*

An adjustable spark gap.—This fitting revives a practice which enjoyed a considerable vogue some eight years ago. At that time, however, insulations were unable to stand the extra strain, and frequent breakdowns were the result. The vast improvement in electrical apparatus of late years would seem to render the use of such a device safe once more, though we should add that the makers of magnetos most emphatically deprecate the use of them; but even in spite of this we confess to considerable partiality towards their use. The device before us is extremely neat, and takes up but little room. The whole screws on to the ordinary terminal of a sparking-plug, and when it is desired to run without the extra gap, the lower end, H, of the terminal, F, is in contact with the brass body, A, screwed on to the plug terminal. To put the gap into operation, the insulated body, D, is rotated till the spring-loaded ball, E, springs into a recess cut in the wall of the annulus, B, which rotation causes the foot, H, to break contact with A.—*Omnia.*



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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

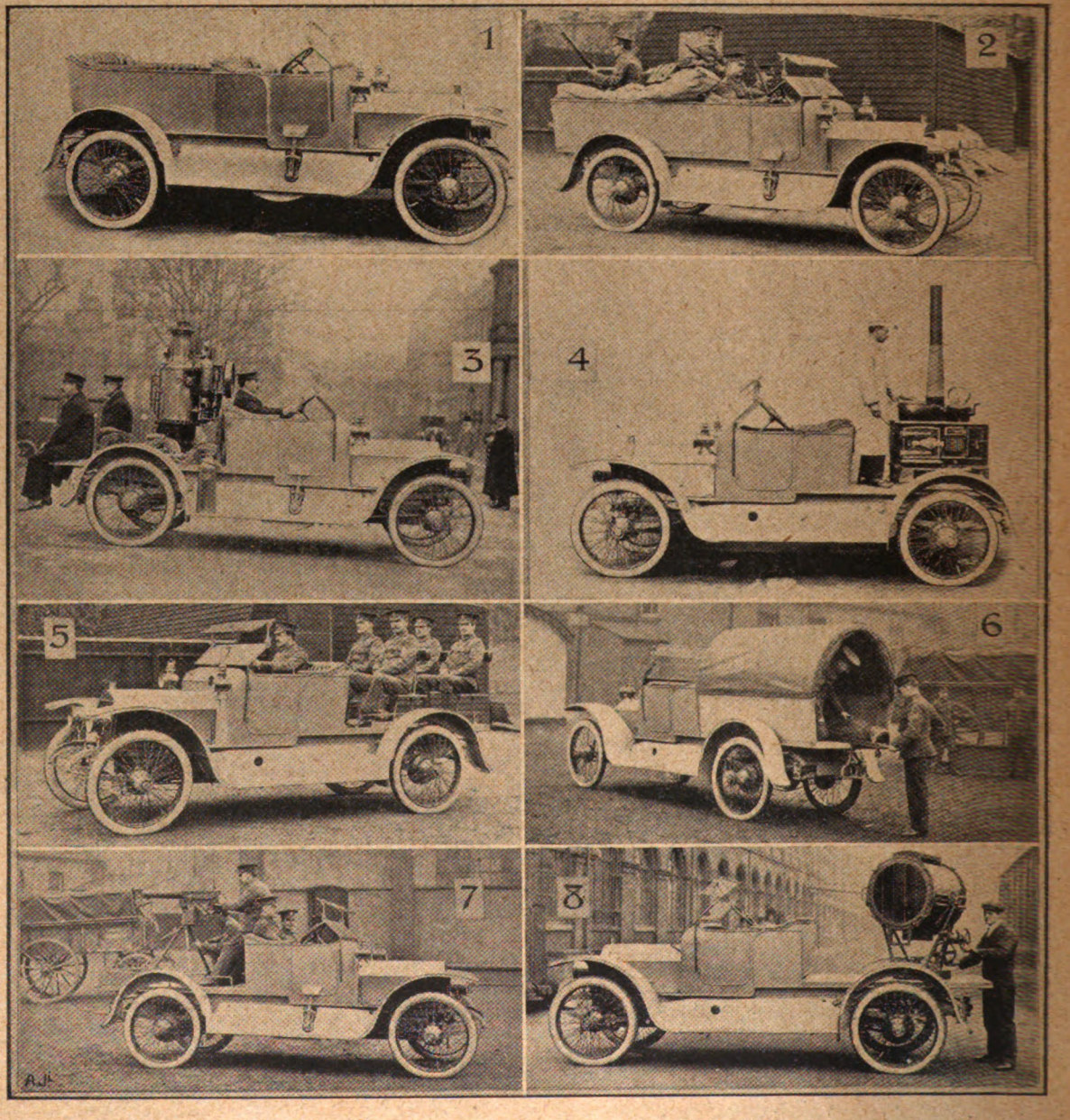
New Members.—Among a very large number of motorists enrolled as new members of the Association during the past two or three weeks are the Duke of Leeds, the Earl of Shaftesbury, the Earl of Dysart, the Earl of Carrick, Lord Killrachen, the Rev. the Marquis of Normanby, Sir Thomas Hewitt, Sir Howard Grubb, J.P., F.R.S.; Admiral Sir Wilmot Fawkes, Major-General Sir Hamilton Bower, the Countess of Cowper, Violet the Lady Beaumont, Lady Wilson, and Sir John Henry Bethell, Bart., M.P.

Handbook for 1913.—The handbook for 1913 will shortly be going through the press. Members are invited to send in confidential reports on the hotels they visit, as the new handbook will contain the names of a large number of classified hotels, additional to those inserted in the 1912 edition. The assistance of members able to send in guiding reports will be greatly welcomed by the secretary.

Flash-Lamps on Highways.—Judging by the numerous complaints received from members, pedestrians in several parts of the kingdom are amusing themselves by flashing electric pocket-lamps in front of cars and motor cyclists. In addition to the complaints already recorded regarding this practice at Swindon (where the Association has secured the hearty co-operation of the police authorities in suppressing it), reports are to hand of narrow escapes by members on the Brighton and other main roads, through the wrongful use of such flash-lamps. The Association is taking strenuous steps to prevent the growth of this dangerous pastime.

Road Signs.—During the months of September, October and November the Association has erected over five hundred road signs. This number includes 223 school signs, 137 danger signs, 94 direction signs, and 59 village signs.

Evidence *re* Collision.—If the motorist who was concerned in a collision with a cyclist shortly after mid-day on Sunday, the 1st inst., at South Croydon, is a member of the Association, he should communicate with the Secretary, who may be able to furnish useful evidence.



A NAPIER CAR ADAPTED FOR ALL EMERGENCIES.—(1) As the ordinary torpedo touring car; (2) the same car fitted with side and end boards suitable as a baggage wagon or for station work, &c.; (3) with a Merryweather fire-engine outfit; (4) with stove for camping, &c.; (5) with detachable back seats giving accommodation for eight riders, suitable for beaters for shooting, or carrying a gun and soldiers to points of advantage; (6) as an ambulance or baggage van; (7) with extra seats removed and gun in action; (8) fitted with searchlight.

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TESTS WITH STEWART-MORRIS CARBURETTOR.

SUPPLEMENTING the tests which were made in September with a Stewart-Morris carburettor fitted to a 27·3-h.p. Pathfinder car, a trial, under R.A.C. auspices, was carried out on November 12th, the car being driven nearly 70 miles through London traffic over a route from Russell Court to Bow Bridge, E., *via* Pall Mall, Cockspur Street, Trafalgar Square, Strand, Fleet Street, Ludgate Hill, St. Paul's Churchyard, Cannon Street, Queen Victoria Street, Mansion House, Lombard Street, Fenchurch Street, Aldgate, Whitechapel Road, Mile End Road, and Bow Road. The length of the double journey was 11·6 miles; this covered six times, made a total distance of 69·7 miles. The installation was exactly the same as in the previous tests, details of which were given in the AUTO. for October 5th, 1912, and the fuel was, as before, paraffin, marketed by Messrs. Carless, Capel and Leonard as "Phœbus" oil, its specific gravity being ·807 at 13° C.

The following are the details from the official certificate :—

The cubical contents of the compression space of a cylinder of the engine was 368 cc., and the cubical contents of the volume swept by the piston was 1,152 cc., giving a compression ratio of 4·13.

A sample of the fuel used was subjected to a distillation test, and the following is the result of the test, and also of one of ordinary commercial burning oil :—

Per cent.	Phœbus.	Ordinary.	Per cent.	Phœbus.	Ordinary.
10 distilled at	140° C.	152° C.	60 distilled at	180° C.	229° C.
20 ,,	151° C.	164° C.	70 ,,	190° C.	243° C.
30 ,,	160° C.	181° C.	80 ,,	203° C.	261° C.
40 ,,	165° C.	198° C.	90 ,,	225° C.	280° C.
50 ,,	172° C.	209° C.			

The trial started at 8.25 a.m., and ended at 7.15 p.m. There were voluntary stops for lunch, &c., totalling 2 hrs. 16 mins., during which the engine was stopped, and, in addition, 64 traffic stops, varying in length from 2 secs. to 1 min. 45 secs., and one longer one of 7 mins. The time occupied by these 65 stops was 28 mins. 46 secs., during which the engine was kept running.

The average speed (running time only) was 8·62 miles per hour. The quantity of paraffin used was 6·06 gallons, being a consumption of 11·497 miles per gallon, or 18·95 ton-miles per gallon.

At 63·7 miles, 50 yards after re-starting after a voluntary stop, the engine stopped, causing a 45 seconds stoppage of the car while it was re-started. The pressure was at the time 5 lb. per square inch. On two occasions the engine stopped on declutching, but was re-started by the clutch without stopping the car.

The weather was cold and damp during the trial and slight rain fell for the last 2½ hours.

There was no misfiring throughout the trial.

The temperature of the cooling water was taken at mid-day, and was found to be 94° C. No water was added during the trial.

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Trial of Motor Sleighs.

AN international Trial of motor sleighs is being organised by the Imperial A.C. of Russia to take place in the neighbourhood of St. Petersburg on January 19th next. The tests will include 5 versts of snow-covered road and 3 versts of untrodden snow. Those competitors that survive these two tests can then take part in the speed Trial. Entries, at 25 roubles each, close on December 29th.

Speed Tests with "Maple Leaf IV."

ON the 28th ult. Mr. Mackay Edgar's boat, "Maple Leaf IV," which won back the International Trophy, was tested over a measured half mile (nautical) at Cowes, the times being taken by Mr. R. G. L. Markham, the official timekeeper of the Marine Motor Association. The usual six runs were made, and the first two produced the best times—41⅗ secs. against the tide and 38⅖ secs. with the tide, the speeds working out to 43·26 and 46·87 knots consecutively. The third and fifth runs were made in 41⅕ secs., while the times for the fourth and sixth were also identical—38⅗ secs., the speeds being 43·69 and 46·63 knots respectively. Taking the mean of these speeds by the proper method, a true mean speed of 45·18 knots was obtained. The sea was smooth, while the wind was recorded as "light airs."

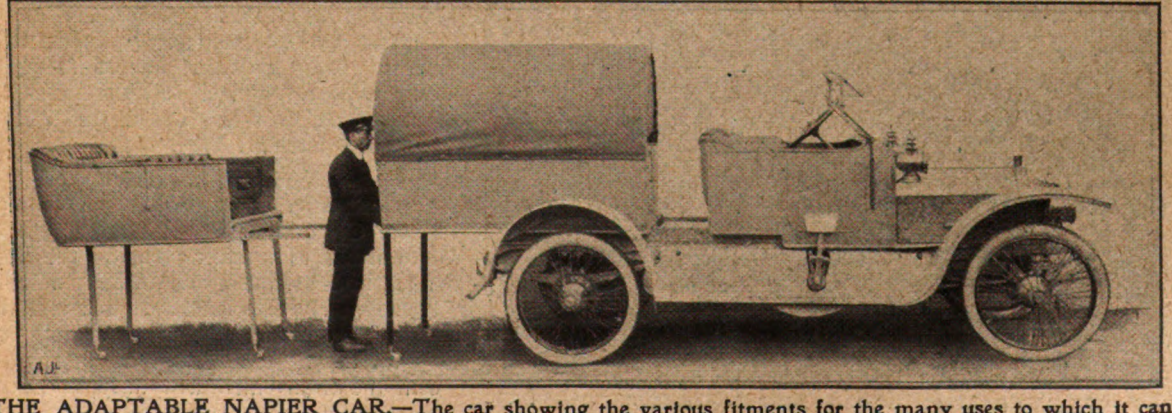
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R.M.Y.C. Lectures for Marine Mechanics.

FOR some time the committee of the Royal Motor Yacht Club has had under consideration the growing difficulty of securing the services of men competent to take charge of motor launches or auxiliary motor installation in sailing yachts, and in order to increase the number of ordinary yacht hands competent to act in this capacity, a course of eight lectures and practical demonstrations has been arranged for the winter.

The lectures, which will be open to *bonâ fide* yacht hands of good character, will be held on Saturday afternoons on board the "Enchantress," which has now returned to her winter quarters in the Hamble River below Bursledon. A small fee will be charged, and a certificate will be given to the candidates who pass the examination.

Mr. H. W. Hutchinson, A.M.I.C.E., A.I.N.A., Foundation Scholar in Engineering R.I.E.C., a well-known member of the club, has offered to act as lecturer. Further particulars can be obtained from the Secretary, Royal Motor Yacht Club, "Enchantress," Bursledon, Hants.



THE ADAPTABLE NAPIER CAR.—The car showing the various fitments for the many uses to which it can be adapted. These bodies were made by the Windham Detachable and Interchangeable Body Co., and were shown at Olympia.

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CURRENT ITEMS OF INTEREST.

Rear Lights on Vehicles.

SOMEWHAT belated, in view of the fact that so many highway authorities have already taken action, the Council of the County Councils' Association has passed a resolution to the effect that by-laws compelling the provision of rear lights, or reflectors, on vehicles are desirable, and that such by-laws should be applicable to bicycles and tricycles.

Training of Automobile Engineers.

ONE of the meetings of the Institution of Automobile Engineers during the present session will be of a somewhat unique character, as a paper, on "The Training of an Automobile Engineer," which has been prepared by four graduates of the London section, will be read. The council consider that the matter is of great importance, and hope that it will lead to a keen discussion.

The Motor Tax in Ireland.

SOME Irish motorists appear to be under the impression that the Act of Union forbade any carriage tax being levied in Ireland, and assumed, therefore, that the tax imposed by the Finance Tax of 1910 was illegal. The matter was brought into court for the first time on Saturday at the Belfast Police Court, and in fining Mr. Brice Smyth £20, with a recommendation that it should be mitigated to £2, for keeping a motor car without having a proper licence, the magistrate stated that under the Act of Union hackney carriages were not exempted in Ireland from tax.

Trips to Paris for Motor Show, &c.

FOR the convenience of visitors to Paris for the Automobile Salon, which opens to-day (Saturday), and also for those who may be visiting the "Gay City" for the Christmas holidays, the Brighton Railway has arranged a series of excursions from one to fifteen days, and available by the day and night express services, from London *via* Newhaven and Dieppe, on December 6th, 7th, 13th, 14th, 20th, 21st, 22nd, 23rd, and 24th. Full particulars can be obtained from the Continental Traffic Manager, L.B.S.C.R., Victoria Station, S.W.

London's Ambulance Service.

AT last a more or less definite move has been made with regard to providing an efficient ambulance service for London. At the meeting of the London County Council on Monday week it was decided to seek Parliamentary powers to enable the Council to obtain control of the stations and appliances of the Metropolitan Asylums Board, the Port of London Authority, the Metropolitan Borough Councils and the Boards of Guardians, with a view to co-ordinating them into an efficient service. It was also decided to approach the Home Office and urge the desirability of an extended and improved provision of police ambulances.

A Long Motor 'Bus Ride.

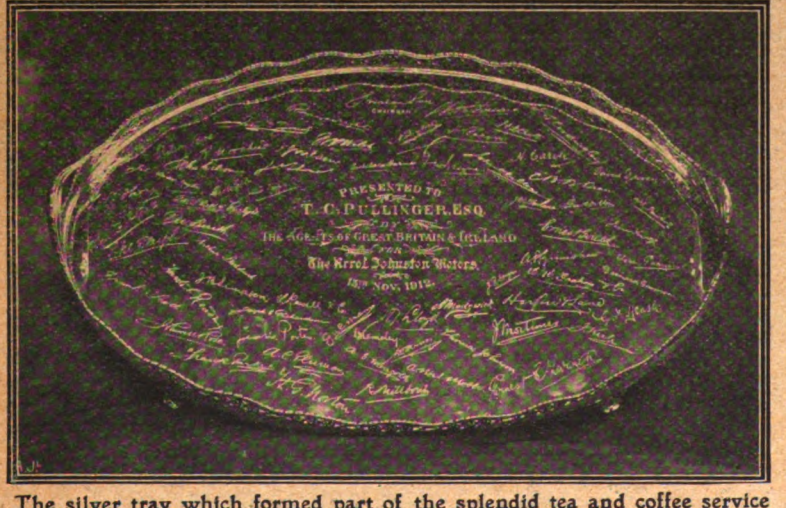
BY way of practically testing the type of motor 'bus which it is proposed to place on the streets of Liverpool, a party of members of the Liverpool City Council last week travelled the 199 miles between London and Liverpool in one of the vehicles.

The International Motor Cycling Federation.

AT a meeting of delegates representing Great Britain, Belgium, Canada, Denmark, France, Holland, Italy and the U.S.A., held at Olympia on Thursday last week, it was decided to revive the International Federation of Motor Cycling Clubs. The Hon. Arthur Stanley presided at the meeting, and was elected Chairman of the Federation, the Marquise de Mouzilly St. Mars being re-elected President, while Mr. G. F. Sharp and Mr. T. W. Loughborough were appointed respectively Treasurer and Secretary. A further meeting to discuss the rules, &c., will be held in Paris at the A.C.F. Clubhouse on the 15th inst., and in the meantime the A.C.U. is formulating a scheme for an annual international event.

Cycle Car Club.

AT a meeting of the Cycle Car Club held at Olympia last week, with Mr. Glyn Rowden in the chair, a set of rules was adopted and a large number of new members were elected. The first club run is fixed for to-day (Saturday), the Meet being at Wisley Hut on the Portsmouth Road, at one o'clock.



The silver tray which formed part of the splendid tea and coffee service presented, at a dinner given by the signatories during the Olympia week, to Mr. T. C. Pullinger, Managing Director of Messrs. Arrol-Johnston, Ltd. At the same time Mr. "Willie" Lowe, the popular Sales Manager of the Paisley Co., was also presented with a silver salver as a mark of the esteem in which he is held.

Responsibility for Private Roads.

OWNERS of private thoroughfares are under no obligation to guard against an abnormal state of the weather, and so cannot be held responsible for accidents which are due to such circumstances. Such, at any rate, is the effect of a decision given in the Manchester County Court recently when a firm of taxicab proprietors unsuccessfully sued the owners of property in a private road for damage caused to one of their cabs through a subsidence in the road, which it was claimed was due to abnormal weather.

A Motor Cycle Quick-Firer.

MILITARY visitors to the Olympia Motor Cycle Show found something more than usual to interest them on the Scott stand, in the shape of one of the new Laird-Menteyne-Degaille machine guns mounted on the handle-bars of a motor cycle. Successful trials are said to have been made with the arrangement at Enfield, and some machines are being supplied to Canada.

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COMPANY DOINGS.

Sunbeam Motor Car Co., Ltd.

PRESIDING at the annual meeting of the Sunbeam Motor Car Co., Ltd., at Wolverhampton, on the 26th ult., Mr. J. Marston (Chairman of the Company), in moving the adoption of the report and balance-sheet, a summary of which appeared in our issue of November 16th, said that he could assure the shareholders that they were increasing their business, and he hoped they would continue to do so. When they raised additional capital, to the amount of £30,000, at a premium of 5*s.* per share, they considered it would be ample to carry on the company for some time to come. They had, however, a great addition of orders, which meant additional shops, tools, and machinery, and the result was that at a specially convened meeting authority was given for the issue of 50,000 £1 Ordinary shares. They did so at a premium of 10*s.* a share. The whole of the shares were taken up, and they actually received £75,000, and, as evidence of the confidence the present shareholders had in the company, they did not have to go outside the ordinary list to raise this amount of money.

Mr. Marston went on to point out that the net profit for the year was £60,889 as against £40,997 last year, while they had paid off the mortgage of £4,413 on the works, so that the business had no encumbrances whatever. Between 35 and 40 cars a week were being turned out, a car taking about six weeks to complete. The company had now nearly 2,250 employees, and the National Insurance Act cost them about £60 a week, practically £3,000 a year. They had not been very much affected by the strikes. The company had purchased a considerable amount of additional land, which would come in for further developments.

Their increased business was due to the splendid achievement of their cars in the Grand Prix and Coupe de l'Auto races. For this success Mr. Coatalen was absolutely answerable, and they considered it to be an advantage to the company to have him on the Board of Directors. He spoke also in terms of high praise of Mr. Cureton, the managing director, to whom, he said, the financial success of the company was due.

Mr. Cureton, seconding the motion, said it had been necessary to double the size of the machine shop, which had now an area of 5,000 square yards, and could accommodate 800 men. They had also built a new body shop and a new paint shop, while they were also erecting new hardening furnaces, a testing house, and a large running shed.

He also referred to the success of the Sunbeam cars in the Grand Prix race, and also to the fact that in the 53 competitions they had won 37 first prizes, 16 second, and 18 third. More careful work, and better material, if that were possible, were put into their cars to-day than ever before. As to the future, it was certainly more "Sunbeamy" than ever.

The report was adopted, but it was decided to pay a dividend of 25 per cent. on the ordinary shares as recommended.

De Dion Bouton (1907) Ltd.

THE directors' report and balance sheet as at September 30th, 1912, shows that the profit for the year amounted to £11,516 1*s.* 7*d.* To this must be added the balance brought forward from last year, £3,318 6*s.*; making together, £14,834 7*s.* 7*d.* Out of this sum the directors recommend the following appropriations: To pay a dividend of 6 per cent. on the ordinary shares, £9,553 14*s.* 10*d.*; to write off preliminary expenses, £2,000; leaving to carry forward to next account, £3,280 12*s.* 9*d.* The cost of maintenance of patents and of fresh patents applied for and granted has been charged against revenue.

NEW COMPANIES REGISTERED.

Briton Motor Co. (1912), Ltd., Stewart Street, Wolverhampton.—Capital £50,000, in £1 shares. Acquiring the business of the Briton Motor Co., Ltd., at Wolverhampton.

"Flower" Motor Ship Co., Ltd., Shell House, 25–27, Bishopsgate, E.C.—Capital £1,000,000, in £1 shares. First directors, Sir Marcus Samuel, Bart., S. Samuel, F. Lane, and A. Bickmers.

Private Companies.

Albert Bridge Garage and Repair Works, Ltd., 71, Royal Hospital Road, Chelsea, S.W.—Capital £5,000, in £1 shares. First directors, G. R. G. Nevinson and C. C. Maudslay.

Puncture Seal, Ltd.—Capital £50,000, in £1 shares. Acquiring a secret process or formula to manufacture and deal in tyres and rubber, leather, or gutta-percha goods, motor cars, and accessories, &c. Under agreements with Puncturum, Ltd., and R. Adey. First directors, H. Aspden, J. L. Cuningham, and J. W. Murray.

Taylor's Garage, Ltd.—Capital £6,000, in £1 shares. Acquiring the business of an automobile engineer carried on by J. T. Taylor at Penzance, Cornwall, as Taylor's Garage.

LEGAL INTELLIGENCE.

Pugh *v.* The Riley Cycle Co., Ltd., and the British Gregoire Agency, Ltd.

COUNSEL for the plaintiff: Mr. W. R. Bousfield, K.C.; Mr. J. M. Astbury, K.C.; and Mr. Robert Frost (instructed by Messrs. Andrew, Wood, Purves and Sutton, agents for Mr. R. A. Rotherham, Coventry).

Counsel for the defendants: Mr. A. J. Walter, K.C.; and Mr. H. A. Colefax, K.C. (instructed by Messrs. Maddocks and Colson, agents for Messrs. Maddocks, Ogden and Co., Coventry).

This action was brought for alleged infringement of Patent No. 9,033 of 1909, being one of the patents by which the Rudge-Whitworth detachable wheel is protected.

In his judgment, given on November 28th, Mr. Justice Warrington said: This was an action for infringement of Patent No. 9,033 of 1909, and that the action was defended on three grounds. First, there was set up the defence of want of subject-matter, and, secondly, the defence of prior grant, which meant that the Crown had before the date of the patent sued upon, granted the thing, and therefore had nothing more left to grant, and, thirdly, on the ground of non-infringement.

The defence of subject-matter really only arose if a wide construction was given to the specification, and he thought such a construction was not the true construction. Therefore, in the result, the defence of subject-matter, according to his view, never arose. The really principal defence was that, if the specification were construed as containing a narrow claim, so as to avoid the defence of want of subject-matter, then the defendants had not infringed; and then there was a subsidiary defence, that of prior grant.

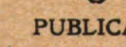
The first thing in this case, as in all other patent actions, was to find out what was the meaning of the specification, and what it was that the patentee claimed as his invention. The specification had been amended, and for the present purpose he had only to construe it as amended.

In the first place, the invention related to detachable wheels for motor cars and similar vehicles, particularly the detachable wheels for motor cars. It referred to wheels, the object and purpose of which was that they might be detached rapidly and a fresh wheel attached rapidly, and with safety upon the road during a journey.

The Judge then dealt in detail with the construction of the specification, and held that the patent sued upon was valid.

On the question of infringement, his Lordship came to the conclusion that the defendants had in fact taken every one of the elements of the plaintiff's invention. As regards the defence of prior grant, the Judge decided that, upon the construction of the specifications involved, the true view was that there was no prior grant, and that the defence on this point also failed.

It was arranged that the judgment for an injunction, &c, should be suspended pending an appeal to the Court of Appeal.



PUBLICATIONS RECEIVED.

Fatuous Fables. By Denis Turner. London: A. C. Fifield, 13, Clifford's Inn. Price 2*s.* 6*d.* net.

The Protection of Trade Designs. By R. M. Neilson. Glasgow: Fraser, Asher, and Co., Ltd., 164, Howard Street. Price 6*d.* net.

Petroleum: the Motive Power of the Future. By W. S. Tower, Ph.D., and J. Roberts, F.G.S., M.Inst.M.E. London: Hodder and Stoughton. Price 6*s.* net.

Proceedings of the Rugby Engineering Society, Session 1911–12. Volume IX. Rugby: The Rugby Engineering Society. Price 10*s.* 6*d.*

Catalogues.

The C.A.V. Dynamo Car-Lighting System. C. A. Vandervell and Co., Warple Way, Acton Vale, W.

Lorraine-Dietrich Cars. Charles Jarrott and Letts, Ltd., 45, Great Marlborough Street, London, W.

The 20-h.p. Spyker Car. Spyker Cars, 97–98, Long Acre, W.C.

The 15·9-h.p. R.A.C. Rating S.C.A.R. Car. The College Motor Co., 115, Fulham Road, London, S.W.

Hurtu Cars. Ariel and General Repairs, Ltd., 322–4, Camberwell New Road, London, S.E.

The Humber "Eleven" in Ireland. Humber, Ltd., Coventry.

Avon Motor Tyres. The Avon India Rubber Co., Ltd., Melksham, Wilts.

N.A.G. Cars. The British N.A.G. Motor Co., Ltd., 4, Great Marlborough Street, Regent Street, W.

The Mira Magnetolite Dynamo. The High-Tension Co., Westminster.

Seabrook R.M.C. Cars. Seabrook Brothers, 57, Great Eastern Street, E.C.

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ROUNDABOUT NOTES.

FOLLOWING the precedent of former years, the 1913 catalogue of Wolseley cars is a very artistic production, but one improvement has been introduced in that it has been divided into sections which are step indexed for each reference, each section dealing with one model. All three chassis are fully described and illustrated, and photos are also given of every type of carriage body fitted. Prices are quoted for complete cars, viz., chassis fitted with body, hood and screen, and a list of suitable accessories are given on the page so that the purchaser may easily and without trouble find the exact cost of the vehicle.

A VERY artistic production is the new edition of the De Dion catalogue, which has as a frontispiece a fine water-colour drawing by Mr. J. Inder Burns. Besides embodying a full illustrated description of De Dion cars, the book gives a little interesting story about the De Dion works and some of the many interesting things which are to be seen there. A copy can be had from 10, Great Marlborough Street, W.

MESSRS. MAXFIELD AND CO., 156, Victoria Road, Aston, Birmingham, have just published a new booklet dealing with their Auto inflater, which has proved itself a very efficient accessory and is being fitted in increasing numbers by motorists who prefer this easy way of inflating their tyres to the old drudgery of hand pumping.

IN the interests of the little Bayard cars, which are now being sold in this country by Bayard Cars, Ltd., 98, High Street, Marylebone, London, W., a new catalogue has been issued. It gives full particulars of the three models of 8-h.p., 10-h.p. and 14-h.p., all of which have 4-cylinder engines. The smallest car with two-seater torpedo body is priced at £197.

HUMBERS, LTD., have obtained a stand in the centre of the Paris Salon, under the dome. They will be exhibiting a 11-h.p. touring car, a 14-h.p. chassis, a 20-h.p. cabriolet, and the Humberette.

FOR the information of those motorists who do not quite understand the application of the diagonally-compensated braking system on all four wheels, we would recommend that they obtain a copy of the Argyll album for 1913. This publication contains a condensed explanation of the operation of this system, and is sent post free by Argylls, Ltd., Alexandria.

ARGYLL motor cars occupy a prominent position at the Paris Salon which opens to-day. Incidentally the sleeve-valve demonstration car travelled all the way by road from Alexandria to Folkestone, and also from Boulogne by road to Paris.

GREATLY to be upheld in their action are the Directors of the Stepney Spare Motor Wheel, Ltd., who have passed a resolution to the effect that "if any person, firm or company or their representatives in future offer, promise or give, directly or indirectly, any commission, present, or benefit to any of the employees of this Company, the Company shall forthwith cease to do business with such person, firm or company."

VIENNA has ordered a score of 25-h.p. De Dion 'buses of the Dt. London type, built to confirm to Scotland Yard regulations. In these vehicles the engine is located beneath the driver's seat, so that the maximum possible length of frame is available for the body-work.

THE 1913 catalogue of the Sheffield-Simplex Co., Ltd., makes a very fine album, and in addition to the full description of the various chassis with sectional drawings—special attention being given to the new 30-h.p. model—full specifications and coloured illustrations are given of the various types of bodywork specially suited to these cars. Illustrations are also given of the accessories supplied.

MEMBERS of the Cycle and Motor Trades Benevolent Fund are reminded that the Annual General Meeting will take place at the Connaught Rooms, Great Queen Street, Kingsway, W.C., at 5 p.m. on Tuesday, December 17th.

THE Motor Manufacturing Co. and Alfred Burgess, Ltd., announce that although they only showed the chain-driven 27–80-h.p. Isotta Fraschini at Olympia they can also supply this model with live axle, so that purchasers can select whichever form of transmission they prefer. As this car comes under the eight guinea tax it should be very popular among those motorists who believe in having a fairly powerful engine.

MR. E. H. LANCASTER has now left Craven House and moved into larger offices at 4, Sackville Street, London, W.

ANYONE interested in Lorraine-Dietrich cars should send a line to 45, Great Marlborough Street, W., for a copy of the new catalogue, which has just been published. It is a highly artistic production, and of course gives full particulars of the different models, as well as prices of various styles of bodywork. It also contains a little dissertation upon the Lorraine-Dietrich works.

IT is not generally known that Mr. Fred May's boat, "Vice Versa," which did so well at the last Burnham meeting, winning three first prizes, one second, and one third, is fitted with a 12-18-h.p. Riley engine which has had over three and a-half years of service.

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BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

24,316. November 2nd, 1911. Improvements in, or in and relating to, Carburettors for Internal Combustion Engines. The Wolseley Tool and Motor Car Co., Ltd., and A. A. Remington, both of Adderley Park, Birmingham.—This invention relates to the type of carburettor in which the depression is maintained substantially constant by utilising the engine suction for lifting simply against gravity a weight valve which controls the air intake passage and a fuel supply. Fig. 2 shows the entire carburettor inside elevation, and the control devices by broken lines. A, is the float chamber, B, the mixing chamber, C, the throttle valve within a pipe-shaped extension of the mixing chamber, D, the weight valve, with its petrol control needle valve, *d*, *e*, is a nozzle which opens direct into the mixing chamber, B, at a point above the level of the petrol in the chamber, A, and this nozzle is in communication with the chamber, A, at a point below the level of the petrol therein, the fuel being drawn from the float-feed chamber directly by the engine suction. The nozzle, *e*, is controlled by a needle valve, *f*, formed on the lower end of a rod, F, which is connected at its upper end with the lever, G, of the throttle valve spindle, C^1. As the depression, due to the engine suction, is substantially constant, the flow of additional fuel is constant, per unit of time, for any given degree of opening of the throttle, as the available area of opening through the nozzle varies with the degree of opening of the throttle.—November 13th, 1912.

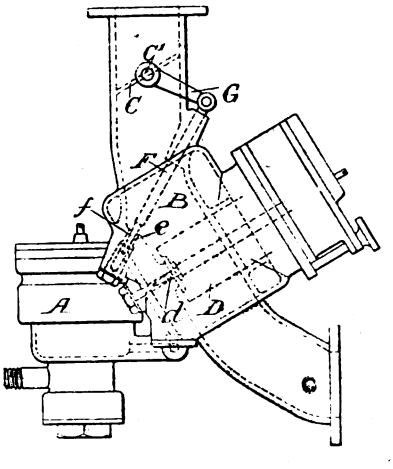


Fig. 2

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published November 28th, 1912.

22,546. T. EMERY. Mudguards.
23,123. H. V. N. GRAVELY. Mudguards.
24,316. WOLSELEY TOOL AND MOTOR CAR CO. AND A. A. REMINGTON. Carburettors.
24,370. MULLINER, LTD., AND R. I. MUSSELL-WHITE. Hoods.
24,597. HANS RENOLD, LTD., AND D. H. SIMPSON. Chain-driven change-speed gear.
24,808. A. G. CLARK. Valves.
25,266. SIR C. S. FORBES. I.C. engines.
25,888. W. S. KNOWLES. Valves.
28,284. N. A. CHRISTENSEN AND A. J. BOULT. Starting mechanism.

Applied for in 1912.

Published November 28th, 1912.

4,209. J. ROMEYN. Starting valve-gear.
6,191. H. READ. Mudguard.
7,334. L. J. CAMPBELL. Change-speed gear.
7,741. F. A. WOOD. Carburettors.
9,860. H. J. SEWELL. Wheels.
10,744. R. VAN DRIESSCHE AND P. MAHEU. Elastic wheel tyres.
13,211. C. L. SCHWARZ. Resilient wheels.
14,251. G. FARINA. Sparking plugs.
18,336. P. DETERS. Elastic tyres.

Published December 5th, 1912.

1,314. S. OSWALD. Mudguard.
2,539. W. A. MCCURD. Lubricating systems.
5,446. R. BOSCH. Brush-holders for magnetos.
7,441. L. J. R. HOLST. Valves.

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The AUTO -MOTOR JOURNAL.

The Motorist's Journal and Directory.

No. 623. (No. 50, Vol. XVII.)] DECEMBER 14, 1912. [Weekly, Price 3d. Post Free, 3½d.



The Australian Derby at Melbourne, the scene giving an idea of the advance of the motor in Australia in like manner to at home and the world over. The Australian Derby was run on November 2nd, in wet weather, being won by Wolaba, owned by Mr. E. E. D. Clarke.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

EDITORIAL AND GENERAL OFFICES:
44, ST. MARTIN'S LANE, LONDON, W.C.
Telegrams: "TRUDITUR," London.
Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
	s. d	s. d.		s. d.	s. d.
United Kingdom	3 6	7 0	United Kingdom	7 0	14 0
Abroad	6 6	13 0	Abroad	10 0	20 0

Remittances.

Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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Passing Events

The S.M.M.T. and the Fuel Tests.

An interesting and important announcement has just been made and referred to briefly in AUTO. last week, regarding the tests of fuels alternative to petrol which the R.A.C. proposes to organise. This is no less than an exceedingly generous gift of a sum of two thousand guineas by the S.M.M.T. to the Club to be offered in the shape of prizes for home-produced fuels which can be supplied at a commercial price and in sufficient quantities. It is a handsome gift and one for which the thanks of the industry and the private owner are alike due to the Society, not only because of its public-spirited munificence but because it renders it absolutely certain that the Club will now be able to conduct tests which will be really worth while. By that we mean that had the tests taken place with only such prize money to be devoted to awards as the Club might have found itself able to spare from its own funds and collected by the process of sending round the hat, there would in all probability have been very little inducement for people interested in the production of hydrocarbons suitable for motor fuel to go out of their way to make the initial tests that are inevitably necessary prior to entering for public competition. That sort of thing costs money and it is scarcely reasonable to expect anyone to conduct lengthy and possibly expensive experiments unless there is at least some prospect of a substantial reward at the end of it all. Thanks to the Society, the Club is now in a position to offer monetary prizes which are well worth competing for and we imagine that there will be a corresponding effect on the interest and the entries. We understand that nothing in the way of conditions has been decided upon yet, this matter being left to the Management Committee to determine in consultation with the Club, but when such conditions as are necessary have been arranged they will doubtless be found to be wide and generous in their scope.

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The Paris Show.

There is really very little to be said about the Salon des Automobiles in Paris, which opened on Saturday last and runs until the the 22nd inst., except that as a spectacle it is magnificent. So far as new interest is concerned, there is practically none, for almost everything to be seen has already made an earlier appearance at Olympia. The only thing which strikes the English visitor is that it is a thousand pities that London has no similar building to accommodate the annual Motor Show, and then we should not only have taken the lead as holding the exhibition with the greater technical interest, but we should be able to rival our French friends in the spectacular. We are not so certain of this latter, however, on second thoughts. Certainly the French are absolute masters of the art of display and decorative effect, and the appearance of this year's Salon is eloquent of this. The executive has again arranged for a uniform method of stand fitting, which is something in the way of a paradox. The scheme, as carried out in the Salon, provides for a simple rectangular sign, painted in yellow, with the name of the car to which each individual stand is devoted outlined in electric lamps, the whole being surmounted at either end by a bunch of electric candles. Seen singly, this sign looks simply hideous—there is nothing artistic in the design and the arrangement looks crude. Seen in the mass, however, the effect is singularly pleasing and harmonious and almost converts the observer to the idea that Olympia would look equally well if the suggested uniformity of stand design were carried out. It is very doubtful, however, if such a style as that adopted by the Parisian management would suit the building and for ourselves we are content to let well alone.

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Of the exhibits themselves there is little, as we have indicated, to be said. Apparently, the "valveless" movement has made more progress on the Continent than it has with us. There are at least a dozen of these motors in which some type of sleeve or rotary valve is embodied, most of which have been seen over here, or with whose details the British student of design is familiar. Then the friction disc drive is receiving more attention, there being several examples of cars exhibited in which this form of transmission figures. The cycle-car does not appear to be having the boom in France which it is experiencing on this side of the Channel, the French idea being apparently to develop the light car proper instead of attempting the evolution of a cross-bred vehicle. When this has been said, we think that it is about all, so far as the technical interest is concerned.

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More Legislation in Contemplation?

According to a printed reply to a question put to him in the House of Commons, the President of the Local Government Board appears to think it necessary to legislate against the enclosed type of motor car. He thinks, according to the reply in question, that some restriction is necessary in the interests of the public generally, and of the occupants of the car, and is considering the form the restriction should take. The type Mr. Burns has in mind is the car in which the driving-seat is enclosed, and while we ourselves do not care for it over much, we cannot see that any interference is necessary so long as the body is so constructed that the driver has an absolutely clear and uninterrupted view of the traffic ahead, and to the sides of the car. The average coupé body certainly provides for this, and in a much better way than in the case of the covered van, for example, so why it should be thought necessary to interfere is beyond us. However, it is pretty safe to assume that whatever regulations it is proposed to make will be issued in draft form first of all, so it is as well to suspend final judgment until we know exactly with what sort of restrictions we are threatened.

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The Government and Motor Fuel.

We cannot say that we are surprised at the reply made by the Chancellor of the Exchequer to a question put in the House of Commons the other day as to whether or not the Government would consent to waive the tax on "home-produced motor fuel." He was quite uncompromising in his attitude on the matter —there will be no abatement of the tax, no matter where or how motor spirit is produced. As a matter of fact, we can scarcely see how the reply could have been different under the existing fiscal conditions. Taxation in this country is levied entirely for purposes of revenue and not for the protection of home industries against foreign competition, and so long as that principle holds we frankly cannot see how any exception is to be made, even in favour of so necessary an article of commerce as motor fuel. We would that such an exception could be made and, were this a journal with any politics of its own, we might launch forth into an explanation of just why this and other exceptions to the prevailing principles of taxation should be, but in the circumstances we can only point out the one salient fact that it is impossible to make exceptions. Those are the plain outstanding facts of the situation. That they are as they are may be right or wrong, according to the views of the individual. The main thing is that the Government cannot without sacrificing one of its cardinal principles allow any differentiation between the home and imported fuel.

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The Progress of the Motor Ship.

It was inevitable, after the successful voyages performed by such craft as the "Selandia," that shipbuilding interests in this country should turn more and more in the direction of motor ships. Already a good few craft engined with Diesel motors have been turned out of the Clyde and North Country yards, but they have been relatively small and low-powered vessels, and nothing in the way of really big tonnage has been attempted on this side of the North Sea. Now, however, things are moving a little faster, a company with a million sterling capital being in process of formation to exploit the motor-driven ocean-going ship. It may be remembered that at a meeting of the Institute of Naval Architects, held last March for the discussion of the results attained by the "Selandia," Sir Marcus Samuel said that if it were possible to get Diesel-engined craft built in this country he and his friends would find a million of money and go properly into the business. As Sir Marcus is one of the signatories of the new company, it looks as though it has been decided by himself and his group that such ships can be built in England and that they intend to develop the business as it deserves.

We do not desire to appear too sanguine, but we do think that the time when the internal combustion engine will really and effectively begin to take the place of steam is not far off. It is doubtless a far cry to the day when the navies of the world will be propelled by oil motors entirely—though even that contingency may not be as far remote as it would at first sight appear—because there is much more bound up in the question of change of warship design than the comparatively simple one of the type of propelling machinery to be adopted. But it is nothing like such a long road to travel to an entire change in the propulsion of the cargo-carrier. In the case of the latter, costs are of paramount consideration, and these include not only the figures relating to disbursements, but also those connected with earning capacity and the cost of delays. In the case of the "Selandia," to take the best known example of the type as an object lesson, it has been found that although the first cost of building such a vessel is greater than that incurred in the construction of a similar ship equipped with triple-expansion steam engines, the lower cost of fuel consumed, the greater capacity for cargo, and the much lighter demurrage charges, enable the motor ship to show a considerably greater margin of profit, voyage by voyage, than its competitor. In a word, the

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motor ship is a more commercial proposition than the steamer, and from the moment that this is realised and conceded, the latter is doomed. It will take a long time to sweep the steamer from the face of the Seven Seas, but disappear it will, as surely as to-morrow's sun will rise.

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The Road Board and London Streets.

The Road Board has informed the highway authorities of London that it is prepared to make grants or short loans for the purpose of repairing (?) roads within the metropolitan police district which have been damaged by heavy motor traffic, and for the acquisition of vacant land required for widenings or improvements of important roads in cases where it can be shown that the prospect of building is imminent. The amount which the Board is willing to allocate to these purposes is a quarter of a million. We have queried the word "repairing" because it is necessary to draw a decided line between works which are properly to be described as repairs—and which therefore come under the head of maintenance, to which the Board's funds cannot be applied—and those which fall under the heading of improvements. This matter of the difference between the two classes of work has been set forth so clearly, both by ourselves and others, that there is no necessity for us to go into it again.

We are exceedingly pleased to hear that the Road Board has decided to come to the rescue of the metropolitan highway authorities, who claim to have been hard hit by the enormous growth of heavy motor traffic during the past three or four years. We could never see the justice of allocating the whole of the available funds for work in the provinces when London, which has the heaviest motor traffic of all our great cities and which contributes the bulk of the Road Board's revenue, was left to make its own improvements out of its own local rates.

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The Champions of the Trams.

Our contemporary, the *Daily News and Leader*, which appears to have undertaken the self-imposed *rôle* of champion of the L.C.C. tramways, has, day by day, done us the honour of quoting from certain articles in the AUTO. dealing with the tramway and motor 'bus controversy. These quotations appear in a series by Mr. H. H. Gordon, entitled "Fifty Tramway Points." We confess that we have not followed him through the whole series, and are thus quite willing to admit that he possibly succeeds in proving to his own satisfaction that the 'buses should be legislated off the roads; but we are only concerned at the moment with his references to ourselves. Under Point 28 he quotes from our issue of October 5th as follows: "Next, we have the complaint that the motor omnibus companies choose only such routes for their services as are likely to prove commercially remunerative. Heavens! what a crime!" He then goes on to say:

"The subject cannot be dealt with in this light-hearted fashion. Transit is the raw material of industry. A tax on raw materials is most injurious to the community, because it limits the scope to which its efforts can be applied. In large and crowded traffic centres transit is as essential to the inhabitants as gas or electricity. The hunt for dividends in supplying the necessities of the people is a tax on progress.

"It is not the least merit of the municipal tramway system that it is not run primarily for 'dividends,' and offers no opportunity for Stock Exchange speculation. It has helped to solve the Housing Problem. The marvellous expansion of Wandsworth is entirely due to the tramway system. Is it fair that the trams should clear the ground, and plough the soil, and that when the harvest is ripe the 'bus should reap where it has not sown?"

There are several propositions put forward in this quotation, but we really cannot see the exact issue of any one of them. As a piece of special pleading to the multitude which does not do its own thinking, it is all very admirable, but we honestly do not think it goes any farther, or that it advances any case for us to answer.

In his following article, "Point No. 29," he quotes from the same issue of the AUTO.: "The motor omnibus takes its routes as it finds them. It asks for no widenings or improvements." His answer is that the complaint is not that the motor omnibus takes its routes as it finds them, but that it does not leave them as it found them and then goes on to advance the extraordinary proposition that motor omnibuses occupy more street surface per passenger carried than tramways do, and that widenings which might be avoided with trams become essential when the less efficient vehicle is employed. We do not know from whence Mr. Gordon derives his knowledge of the comparatives of the two classes of vehicle, but we have a shrewd suspicion that in this case it is the desire which prompts the thought. If he will refer to easily obtained statistics he will find that his premises are altogether wrong. For one thing, although we do not know the precise amount of street surface occupied by either tram or motor 'bus in relation to passengers carried, we would point out that it is easily demonstrable that the tram is more than twice as obstructive to traffic as its more mobile rival, which, we submit, disposes entirely of the peculiar theory of street widenings advanced by the *Daily News and Leader* contributor. However, it does not matter much and we have only quoted from our contemporary in order to show to what a pass the champions of the unfortunate L.C.C. tramway enterprise are come for their arguments.

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Large Underground Petrol Store.

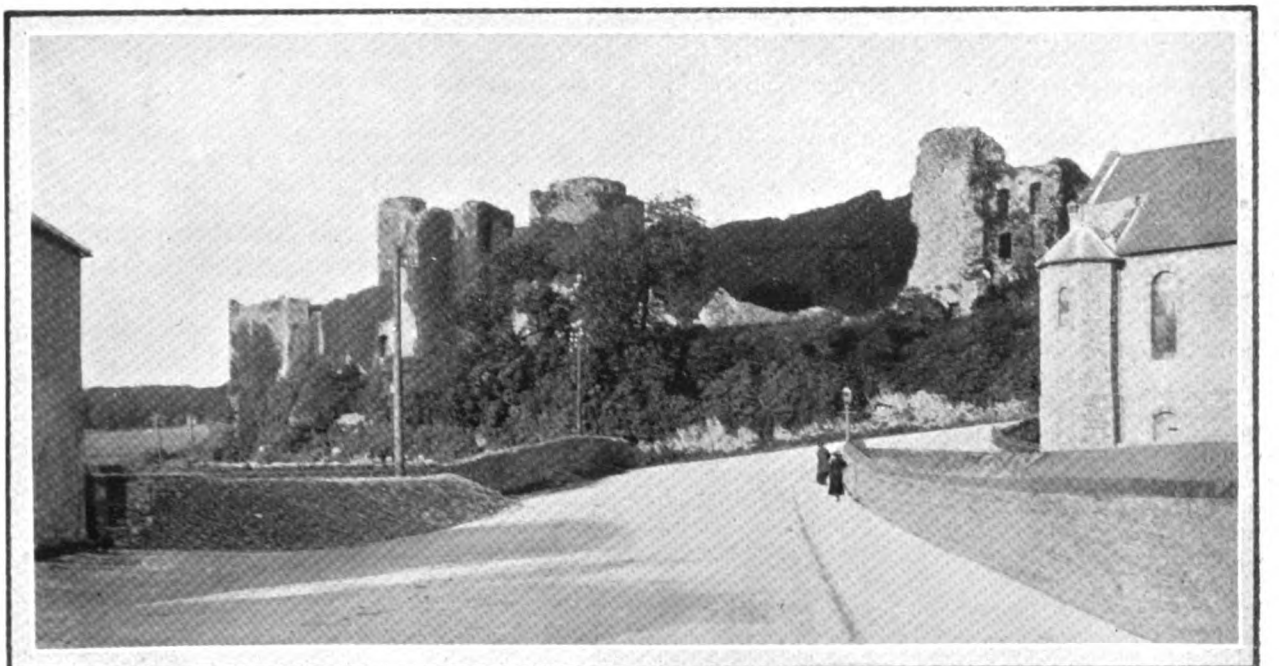
IN connection with the special licence recently granted by the Acton Council permitting Messrs. W. and G. Du Cros to store at their Acton garage 48,000 gallons of petrol, four huge tanks, each with a capacity of 12,000 gallons, were sunk in the centre of the garage last week.

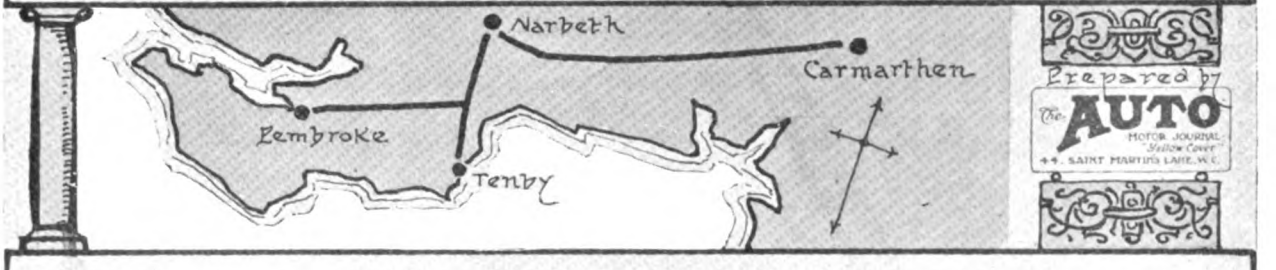
SPECIAL NOTICE.

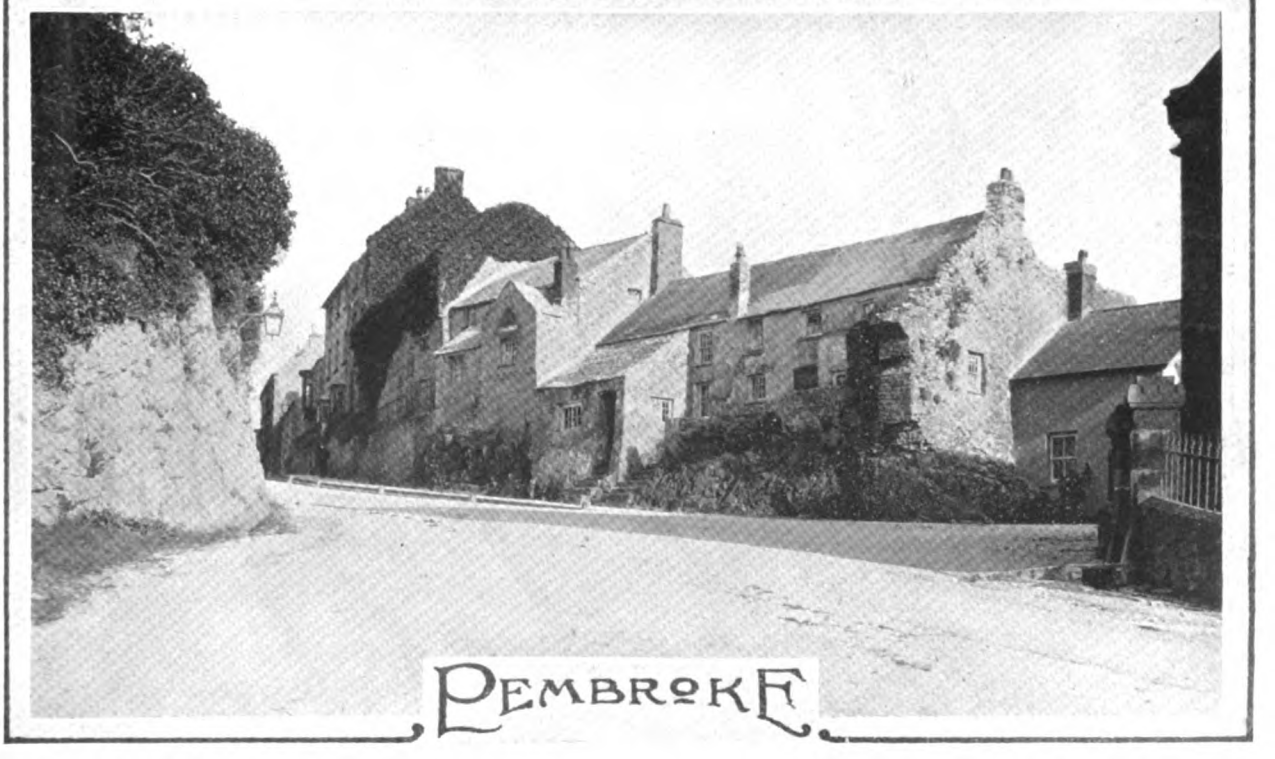
CHRISTMAS HOLIDAYS.—Owing to Christmas Day and Boxing Day falling on Wednesday and Thursday this year, it is necessary for AUTO. for December 28th to close for press on December 20th. All copy, editorial or advertisement, must therefore be at the office, 44, St. Martin's Lane, not later than first post, December 20th.

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WITH THE CAMERA AND THE CAR.







PEMBROKE CASTLE.—General view. Built during the reign of William II. Henry VII was born there. It was held for Parliament during the Civil Wars, but just at the end of those stormy times went over to Charles, and was taken by Cromwell after a three weeks' siege.
A picturesque old house in Pembroke.

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THE PARIS SALON.

ONCE again, after a lapse of two years, the Grand Palais is given over to a Motor Car Show, and as in 1910, when two years had elapsed between the eleventh and twelfth Salons, the visitor finds many changes. The system of a uniform scheme of decoration, introduced at the last Show, is continued, but the scheme this time is even more uniform than then, when a variation was made in the decoration of the chief stands in the *Grande Nef*. Among other noticeable changes which the visitor observes are the large number of British and American concerns which are showing; the disappearance of cycles and motor cycles from prominent positions and the introduction of heavy vehicles on the prominent stands is also a distinct departure. The motorist who has made a point of attending every Paris Show will observe. too, that some of the coveted stands in the *Grande Nef* are occupied by comparatively new comers to the industry, while some of the older firms are more in the background. Entering the Exhibition by the main entrance in the Avenue Nicholas II, one of the most prominent stands in the Central Avenue to the right is that on which Rolls-Royce cars are seen. A little further on are the Austin and Wolseley Stands, the former having on it the 30-h.p. four-cylinder car, which is making its first public appearance in Paris. To the left are the displays of Daimlers, Sunbeams, and Argylls, while on the way to the *Coupole d'Antin* is seen the Humber exhibit. Messrs. F. S. Bennett have a stand in the principal avenue, on which the sectioned Cadillac chassis is shown, and among other American firms which are represented in the main hall are the Overland, Buick, Bedford, R.C.H., Studebaker, Hupmobile, and Reo. Among newcomers to the Salon three are designated simply by initials, these being the F.R.A.N., the D.S.P.L., and the S.C.A.P.

The British industry is also well represented in the accessory section, and among those seen on the ground floor are Messrs. Benton and Stone, Lamplough and Co., T. Parsons and Sons, Austers, Ltd., Windovers, while upstairs are Dunlop Tyres, &c., Palmer Tyres, Riley Wheels, Rudge-Whitworth Wheels, Kirby Beard and Co., Harding, Hall Spare Wheel Co., Warland Rims, New Motor General Rubber Co., North British Rubber Co., Simms Magnetos, Coventry Chain Co., &c. Among the motor cycle exhibits, which are tucked away in the Gallery, are Triumph, Douglas, New Hudson, &c.

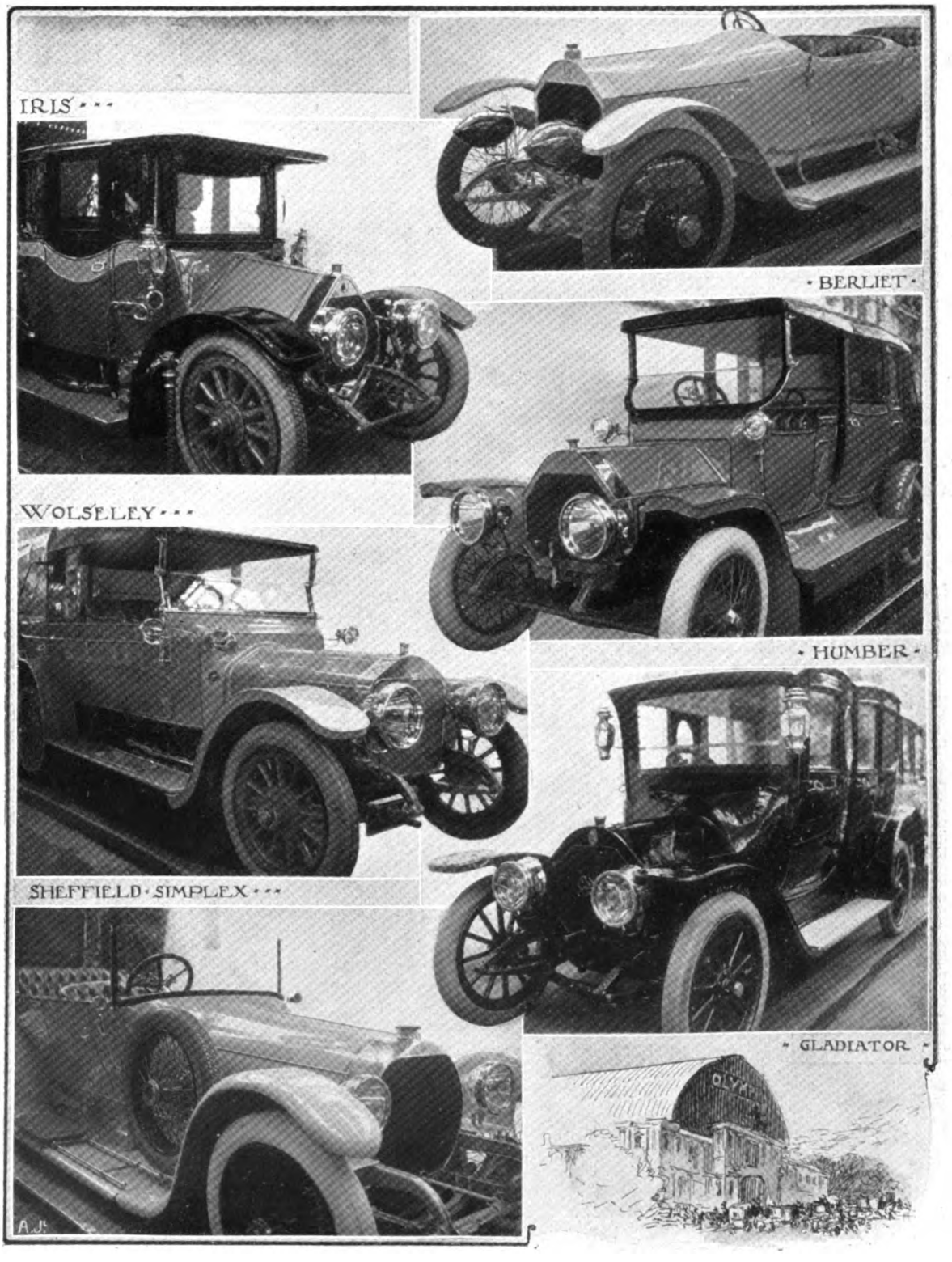
As usual, the Show was officially opened at 9 o'clock on Saturday morning by the President of the Republic, and M. Fallieres, accompanied by the Minister of Commerce, the Under-Secretary for Fine Arts, General Roques, the President of the Senate, the President of the Chamber of Deputies, &c., after being received by M. Armand Peugeot, Chairman of the Organising Committee, commenced a tour of the principal stands. A special point was made of visiting a representative of each country, Rolls-Royce for Great Britain, the Cadillac



PARIS SALON, 1912.—A view of the *Grande Nef*, showing the general scheme of decoration.

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for America, Mercedes for Germany, F.I.A.T. for Italy, &c., and the President also paid special attention to the speed cars shown. On the Sunbeam Stand the winner of the Coupe de *l'Auto* was admired, while No. 22, the Peugeot car on which Boillot won the Grand Prix also had to have "a pat on the back," an honour which was likewise extended to the Lorraine Dietrich car, which did such splendid record breaking at Brooklands



"Auto." (Yellow Cover) Copyright.

MODERN BONNETS.—The above illustrations from the Olympia Show illustrate another selection of modern bonnets, showing various methods of joining the bonnet to the dashboard. The Sheffield-Simplex and the Berliet are excellent examples of the true torpedo type.

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the other day. Altogether the President's visit lasted three-quarters of an hour, M. Fallieres not forgetting that there were many good things to be seen in the Gallery, including the motor cycles. Immediately the Presidential party had left, the doors were opened, and the crowds began at once to pour in. Each day this week, from half-past nine till six, there has been no lack of visitors at the Grand Palais, and no doubt the same tale will be told right up to the time of the closing of the Exhibition on Sunday week.

With regard to the exhibits, the visitor who made a careful study of Olympia will find little that is new. On the Austin Stand, as we have said, the 30-h.p. 4-cyl. is seen in Paris for the first time, and to see it is to admire it. Special features of the design are the enclosed valve spindles, and the mounting of the brake on an extension of the torque tube. On the Wolseley Stand is the 24-h.p. 6-cyl. chassis, which was at Olympia, while the complete cars include two very fine limousines. Following their practice at Olympia, only complete cars are shown by Messrs. Rolls-Royce, and the trio includes a speedy-looking open car, a landaulette, and a limousine. The models of the single-sleeve valve engines of the Argyll cars never fail to draw a crowd to their stand, where besides the 25-h.p. chassis, a touring car with Cape hood, and a 25-h.p. landaulette are staged. On the Daimler Stand there is also something for the man who "wants to see the wheels go round" in the shape of a sectioned engine, and a model of the worm-drive. All the Daimler vehicles on view are of the enclosed type. On the Sunbeam Stand interest centres round Rigal's No. 3, which won the Coupe de *l'Auto*. The chassis of the 12–16-h.p. and 25–30-h.p. model are also exhibited, as well as a 12–16-h.p. open car and a 16–20-h.p. landaulette. The Humber exhibit is practically the same as was on view at Olympia.

Generally speaking the stands are somewhat larger than at Olympia so that cars can be examined more comfortably and also one or two manufacturers have been able to display some of the trophies won by their cars during the past season. A novelty among the exhibits is the sleigh on the Martini Stand in which the wheels are replaced by runners and the car driven by means of two rollers placed lengthwise with the car, worms being mounted on these rollers to provide a grip between them and the ice over which the car travels. Another novelty was on the Cadillac Stand, consisting of a model of a Cadillac car, large enough for two children, the propelling power being a Cadillac self-starting equipment.

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Taxicabs and Petrol.

A DEFINITE step in the trouble which appears to be brewing between the taxicab proprietors and the drivers has been taken by the masters in announcing that—

In accordance with Clause 4 of the award of March 6th, 1912, the price of petrol to be charged to the drivers on and after January 1st, 1913, will be 1*s.* 1*d.* per gallon.

The representatives of the men have informed the Board of Trade that they agree that this price is correct.

The representatives of the men, however, say that it is impossible for them to pay the increased price.

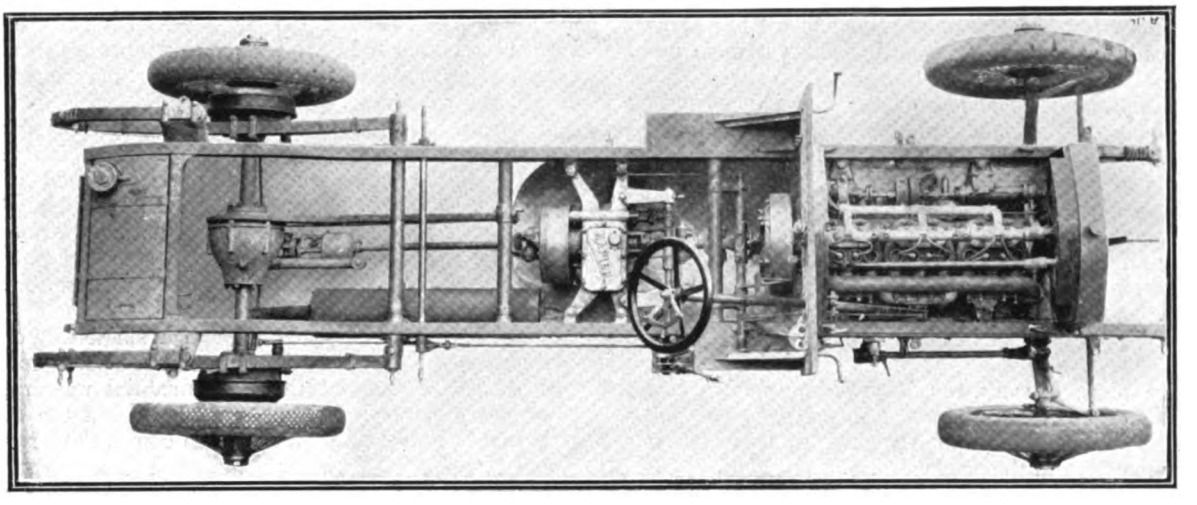


An incident, during the recent gale, in front of the famous Argyll motor works at Alexandria. All traffic had to be diverted through the private grounds of Argylls, Ltd., until the road was cleared of this awkward obstruction.

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THE NAPIER 6-CYL. "THIRTY."

FOLLOWING their progressive and thoroughly accommodating methods of announcing their 1913 programme, Messrs. S. F. Edge send us yet another interesting set of chassis photographs illustrating one of the latest Napier cars. The car in question is the six-cylinder "Thirty," latest "Thirty" itself. The back axle is worm-driven and the back axle casing is provided with a special oil filler and level indicator. The lubrication system of the engine has also undergone refinement, and the crank-shaft bearings have been increased in size. A small matter,



Plan view of the 30-h.p. 6-cyl. Napier.

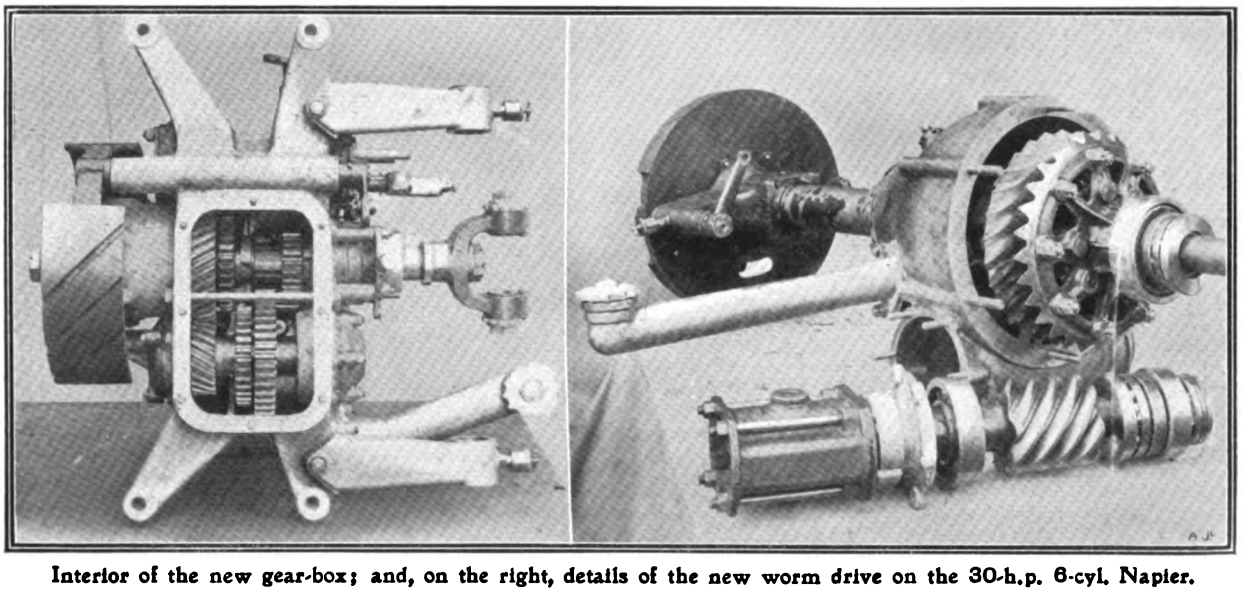
a model for which we have always expressed a great liking, and which has, in fact, justified itself by attaining to an extraordinary popularity. Originally introduced as one of the Colonial series, its interest to the public at large never had to wait until it went so far afield as the Colonies; it is used in England as much as elsewhere and it remains to-day what we considered it to be then, namely, one of the nicest of the Napier cars.

This year it has undergone many important modifications that make for refinement; it has an entirely new design of gear-box, a new foot-brake and a very excellent new single-plate clutch, which we recently tried on a more powerful Napier car and can therefore speak, as it were, from experience, although we have not yet driven the

but not the less to be appreciated on that account, is an improvement in the fan-belt adjustment.

Four inches have been added to the length of the wheel-base, which is now 10 ft. 8 ins., and a variable rake is now available on the steering column. Similarly, the change-speed lever and the brake lever can be set to suit the position of the front seat.

Our illustrations show the chassis in plan and give very clear views of the interiors of the gear-box and the back axle. The first point that strikes one about the gear-box is its compactness, the shafts being short and stiff, which makes for silence. Three speeds and a reverse are provided, and it will be observed that the permanent mesh wheels between the through shaft and the lay shaft have



Interior of the new gear-box; and, on the right, details of the new worm drive on the 30-h.p. 6-cyl. Napier.

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helical teeth, which also makes a noiseless arrangement. The reverse is mounted on an eccentric so that it is brought up into mesh with its corresponding wheel, which saves the length required for sliding motion and again, indirectly, conduces to silent running.

Special attention has been paid to the number and arrangement of the ball bearings so as to give the maximum of support to the shaft, which by eliminating the effects of strain prevents mal-alignment and slackness and so reduces wear, which yet once more comes back to the abolition of noise.

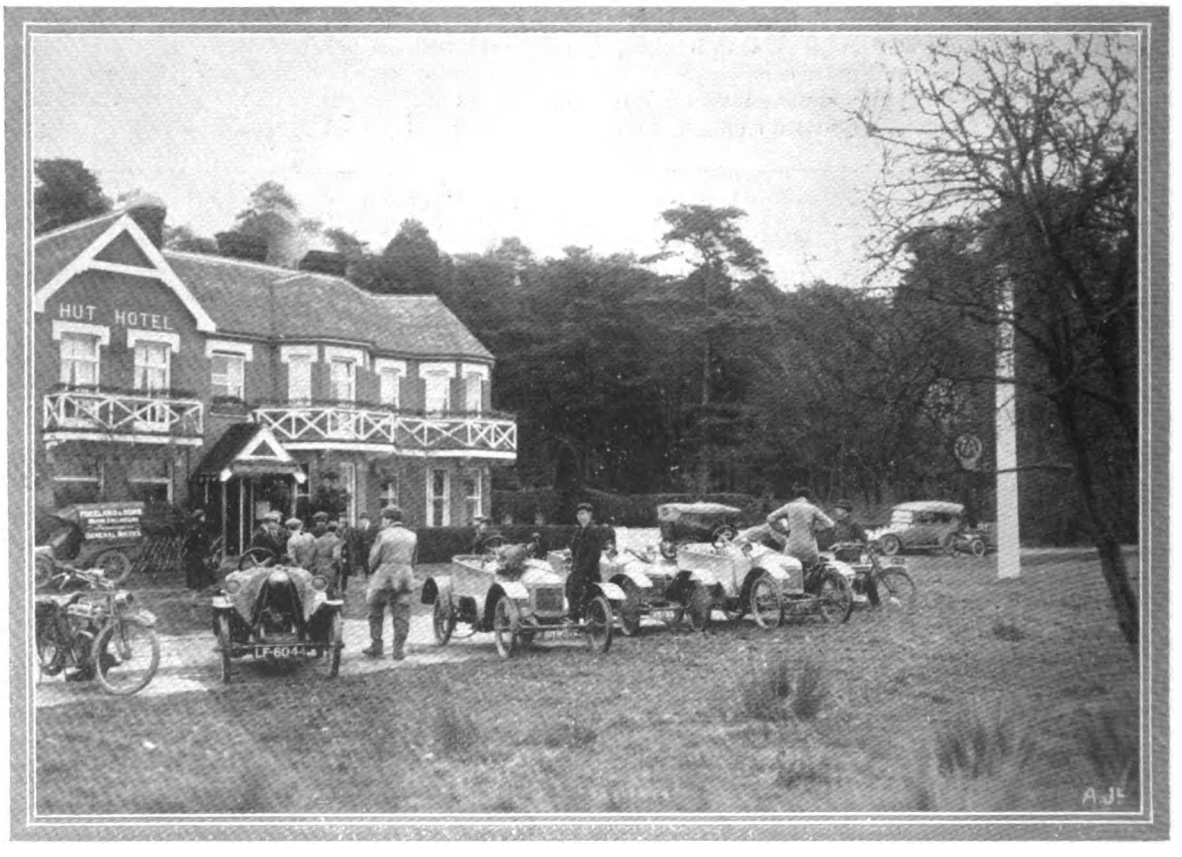
In the same view is shown the massive expanding shoes of the foot-brake, also the hollow bracket extension which serves as an oil filler and automatic oil indicator. It is easy to see, by unscrewing the cap, whether there is oil enough in the gear-box, because when you can see oil in the filler there is enough and when you cannot see any oil there is not enough. It is very simple; we cannot imagine how anyone can possibly go wrong in the care of the car when the answer to a problem of this sort is, so to speak, ready made and packed in the box.

A nice piece of work, too, is the Napier worm-drive, with its hardened steel worm and solid bronze alloy wheel. The machining and hardening of these parts is no easy matter, and the production of a satisfactory worm-drive is an accomplishment to be proud of. In any case it is something worth achieving, because a worm-drive means silence in the back axle, and when you have spent a small fortune in evolving a silent engine and a silent gear-box, it is disheartening to have the effect spoiled, as it is always *liable* to be spoiled, by a pair of bevels. It is possible to have a pair of bevels that are quiet, but it is uncommonly difficult to find the pinion that will not whisper to the crown sometimes.

Of the engine, we have only space to remark on a few of the leading characteristics, as for instance that its bore and stroke are 82 by 127 mm., and that its Treasury rating is 25·3-h.p. It has a larger crank-shaft in order to avoid liability to tremor, and this has, of course, necessitated larger bearings which will have the advantage of increased life. Lubrication by the Napier forced feed system is retained and the oil circulating pipes are arranged outside the base-chamber so that they may easily be detached for cleaning.

A turbine-type pump attends to the water circulation, and the radiator is assisted by a belt-driven fan made from a single piece of steel plate fastened to an aluminium boss that is supported on ball bearings. The Napier two-jet carburettor, with its rotating throttle and adjustable air-shutter, is retained as a standard and very desirable feature. Petrol is fed to the carburettor by a plunger-pump worked off the cam-shaft.

Transmission takes place through a single disc clutch enclosed in the fly-wheel, the disc surfaces being covered with a special material that has qualities rendering it extremely suitable for clutch work. Behind the clutch is a double universal joint and then comes the gear-box, which is operated by a lever mounted in a new type of change speed gate. Behind the gear-box is the foot-brake and behind that again another universal-joint. Then comes the propeller shaft alongside which is a pressed steel torque-rod of novel construction. Finally we would draw attention to the very long comfortable-looking rear-springs, which doubtless add much to the virtue of the car as a luxurious touring carriage.



THE FIRST CYCLE CAR MEET.—Some of the participants at Wisley Hut, Cobham, December 7th.

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Notes from New York

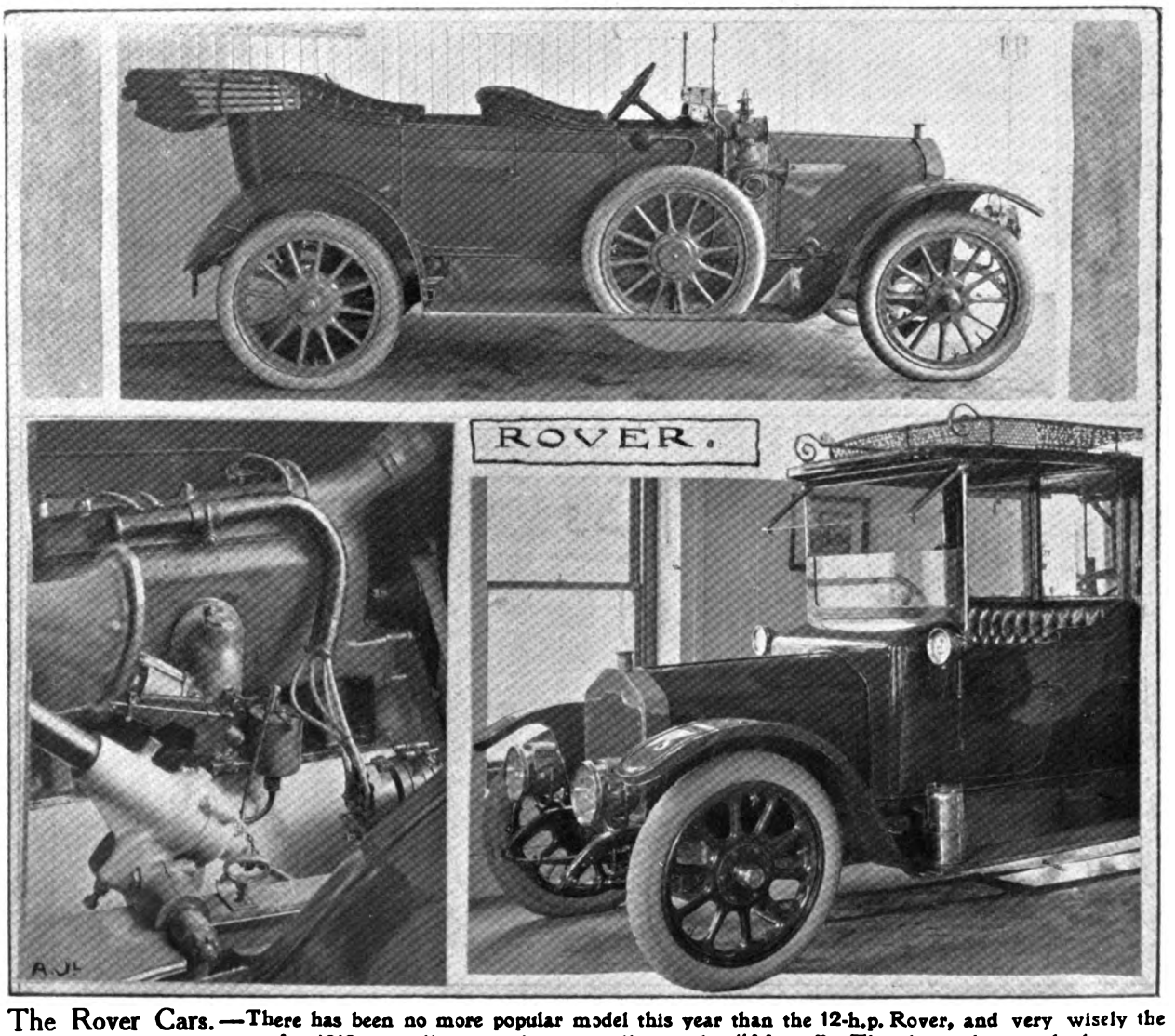
WITH the somewhat peculiar title of "The Gasolene Engineers Protective Association," a society has been incorporated in New York which aims at putting a stop to joy-riding, drunkenness, and vice of every kind among chauffeurs, and to help the police to enforce the "rules of the road." The promoters hope that the organisation will eventually become a National one.

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The American Museum of Safety, which exists to "conserve human life," is arranging courses of lectures for children, with a view to keeping them from playing in the streets and also to teach them how to avoid accidents in crossing thoroughfares. The lectures are free and open to both adults and children, and are illustrated by diagrams, chalk drawings, and lantern slides. During the summer, lectures were given in nearly all the New Jersey schools and it is believed that as a result of the lectures the proportion of accidents to pedestrians decreased forty per cent. during the last few months. Permission has been obtained for the lectures to be given in New York schools.

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The Jones Speedometer Co., of New York, have now produced a petrol gauge, which is of simple construction and has no floats, pulleys, strings, or other frictional movements. The only working part that it has, is a small expansion chamber, which is acted upon by the level of the petrol in the tank, to which it is connected by a copper or a rubber pipe. As the petrol rises or falls in the tank, the air pressure in the tube is increased or lessened and acts upon the diaphragm, which in turn moves a pointer on the dial.



The Rover Cars.—There has been no more popular model this year than the 12-h.p. Rover, and very wisely the firm is continuing the type for 1913 as well as its almost equally popular "fifteen." The above photograph shows a Rover touring car, a Rover landaulette, and a detail illustrating how the steering gear is supported on the frame.

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The two Chalmers cars offered by Mr. Hugh Chalmers to the players who were adjudged by the Chalmers Base-ball Trophy Commission to be most valuable to the respective teams during the 1912 season, have been awarded to Tris Speaker, centre fielder of the Boston Red Sox, and Larry Doyle, captain of the New York Giants. Both cars were of the 1913 "Thirty-six" type.

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In view of a number of accidents which have occurred recently, the City Council of Columbia, Ohio, has just passed a by-law requiring every kind of vehicle—with the exception of a baby carriage—to carry a light when traversing the streets of the city after nightfall. The by-law makes it necessary for the light to show white in front and red in the rear.

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There is a rumour that negotiations are proceeding with a view to Barney Oldfield joining the racing troupe under the management of E. A. Moross, of which Bob Burman is the star. Should the arrangements be carried through, the combination will probably conduct a "barn-storming" tour along the Pacific Coast this winter.

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While the general rule in the U.S.A. is to have motor car shows at the beginning of the year, St. Louis, Mo., follows a line of its own, and is practically the only Show held in the fall. This year's Show closed on October 12th, after a record week. About 300 cars, representing 70 different makes, were on view, as well as a large number of commercial vehicles, and the aggregate attendance was something about 70,000.

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This will again be a record year for Massachusetts, from the motor point of view, judging by the registration figures. For the first nine months, 47,431 cars have been registered in the State, as against 36,796 for the whole of last year, while 4,720 motor cycles have been registered, as against 3,712 last year. Fees of one sort and another in connection with the registration and licensing of motor cars and drivers have this year, up to October 1st, produced $583,359, whereas the whole of the revenue during last year was $466,199.

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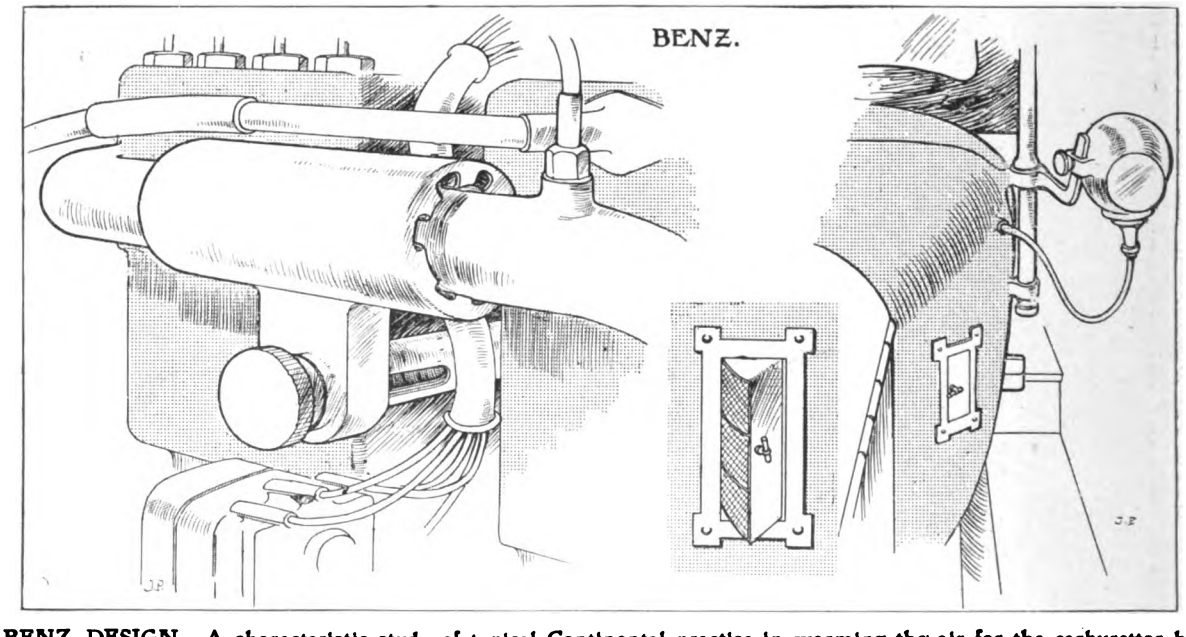
Chicago City Fathers are still busy thinking out by-laws for motorists, and of their latest proposals, one would compel owners of cars fitted with self-starters to further equip them with locks, so that the motors could not be started by small boys or mischievous persons, while another would make it necessary for all cars to be fitted with fenders. Meanwhile, however, the motorists have threatened to contest the by-law that prohibits motor cars from passing tramcars which have stopped at crossings to take on or let off passengers. It is claimed that this is class legislation, and rather than run the risk of having the ordinance declared unconstitutional, the Council has amended it so as to include all vehicles.

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At the Electrical Show held in the Grand Central Palace, New York, from October 9th to 19th, there was quite a large section devoted to motor cars. Ten different firms had electrical vehicles on view, including 10 models of pleasure cars and 18 commercial vehicles of various types. A feature of the Show was a track on the third floor where prospective buyers of the pleasure cars were able to try the vehicles.

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Some figures have recently been published by the Indianapolis police regarding the work of the three motor vehicles in use during 1911. In 7,249 runs, the two Packard patrol wagons covered 23,866 miles, while the Premier touring car used for emergency work made 1,978 journeys, covering 12,542 miles. Excluding the driver's wages, the total cost of gasolene, oil, and maintenance of the three machines during the year was $3,927.



BENZ DESIGN.—A characteristic study of typical Continental practice in warming the air for the carburettor by drawing it from a jacket surrounding the exhaust-pipe. On the right is a little ventilator in the torpedo-type dashboard.

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THE AUTO MOTOR JOURNAL

MOTOR CYCLE MATTERS.

By "MULTI."

Winter Riding.

WITH the change of season comes the advisability of changes in the general equipment of machine and rider, and, with regard to the former, the following are those that experience has taught me to be of the greatest use, and I offer them to the consideration of others in the hope that some few at least will be able to profit by the suggestions.

Tyres.

Everyone doubtless sees to it that, at the beginning of the winter season, his back wheel is shod with a tyre of first rate non-skidding properties, but not everyone is so concerned about that on his front wheel. Now, personally, I have found that all my own *falls* from skidding have been occasioned by lapses from duty on the part of the front tyre. Naturally, in point of number, back-wheel skids have far exceeded those of the front wheel; but the latter are attended with graver consequences, a tumble being almost a certainty, whereas the former can, ninety-nine times out of a hundred, be corrected in time to prevent an actual spill—presuming, of course, that the machine is fairly modern, and has a sufficiently low riding position to enable the feet to play their part in the recovery on the first symptoms of unsteadiness.

For these reasons I make a strong point of fitting a brand new non-skid cover to the *front* wheel of my solo machine so soon as November comes round, sometimes before, and in all cases where my readers have but one new non-skid cover available, I strongly advise it to be fitted in this position.

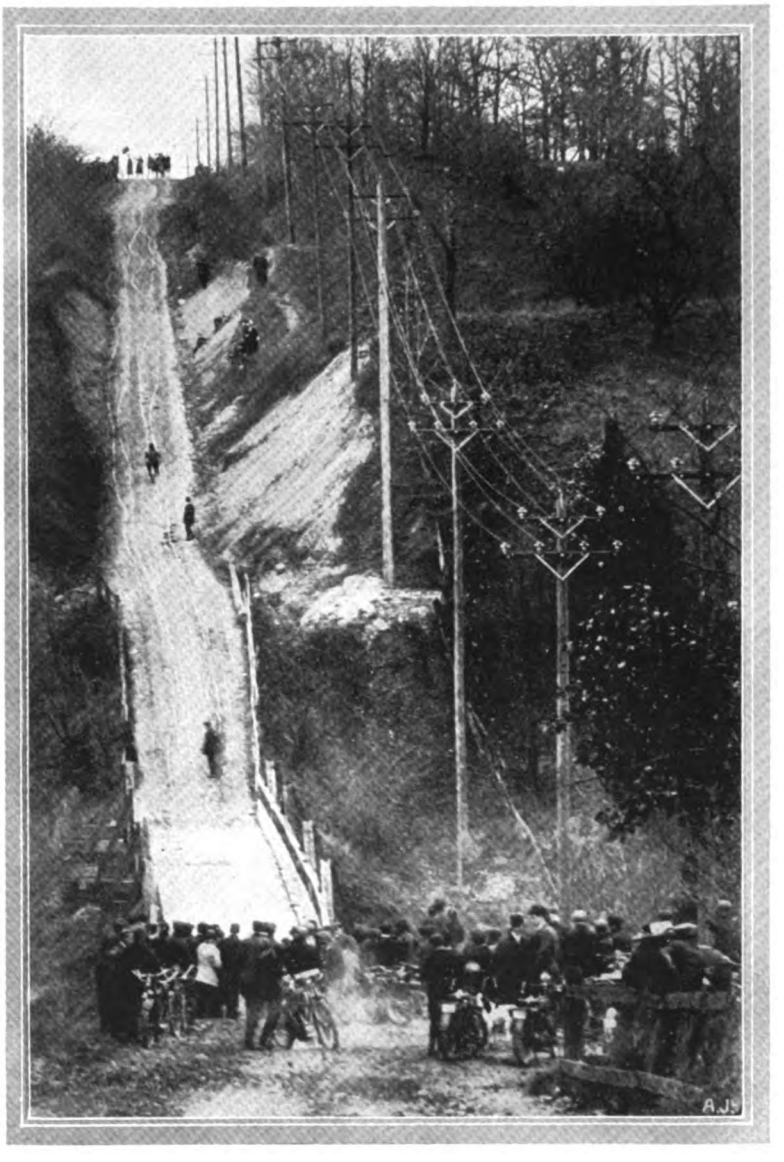
Incidentally, it is worth while remembering to remove all trace of rust from the clinch of the rim when fitting a new cover at any time. The application of a coat of black enamel thereafter is an excellent preventive of further rust, and has saved many a good cover from the ruin generally ensuing from its insidious attack on a tyre's most vulnerable part.

Belts.

Most belt-driven machines are now supplied by the makers with rubber and canvas belts, and many of the present generation of motor cyclists have, in consequence, never tried anything else. To these I would say "give a good make of leather belt a fair trial during the coming winter."

For summer riding, I own, I prefer the rubber kind, for its cleanliness and almost entire freedom from need of attention outweigh all other considerations, but in the winter, the drawbacks of the leather belt and the advantages of the rubber belt respectively become less pronounced, and the balance is, to my way of thinking, entirely in favour of leather. The great objection to the leather belt has always been its habit of collecting dust and road grit, which causes wear on the pulleys and necessitates a constant expenditure of labour on its removal. As a rule, however, roads in winter are not overburdened with dust and grit, the prevailing road mixture being either mud, slush or water, and the above objection can have little weight.

Its advantages, on the other hand, are its capacity for extended hard work, excellent gripping powers in all climatic conditions (it can, therefore, be run under moderate tension, which is all to the good of the engine), little liability to pull through, and, when of good make and properly kept, a high degree of flexibility (which means efficiency as a power transmitter). In striking contrast to this is



TESTING MOTOR CYCLES IN CANADA.—A scene at the Toronto Motor Cycle Club's hill-climbing contest at Toronto. It is the steepest in the district, and is located on Bathurst Street, about half a mile north of St. Clair Avenue, the average grade being 16 per cent., whilst the surface is beyond redemption.

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the behaviour of rubber belts in wet weather. Unless abnormally taut, belt-slipping is bound to take place; tightness means fasteners pulling through, rapid wear of main bearings, and heavy belt expenses.

On the approach of winter, therefore, my rubber belt is exchanged for one of leather. Attention it needs, of course, and a good deal of it. After every ride of any length off comes the belt, water and road matter is removed, and collan oil applied to top and bottom, *not* the sides; it is then left hanging till next required. In conclusion, when in good condition a leather belt should be as soft and pliable as a barber's strop; it should never be allowed to assume the least suspicion of harshness.

Mudguards.

Of these, there is not a great deal to be said. Most present day machines are pretty effectively guarded, but to those whose machines are not fitted with side flaps to both front and rear guards, I strongly urge their adoption. They can be obtained to fit nearly all existing makes without much expense, and if they are easily detachable —as some are *not*—they do not hinder tyre repairs to any marked extent. Special forms of "mudshields" also are obtainable, but they are an expensive item, and the additional amount of cleanliness they afford the rider is scarcely ever worth the outlay.

Gears.

In the days of fixed pulleys and fixed engines (which I find are not yet extinct), when making preparations for the winter, it was my custom to reduce the normal gear considerably by the substitution of a smaller pulley. This was for three reasons; first, I was able to "crawl" more easily; secondly, the heavier road surface rendered a lower gear essential for climbing hills satisfactorily; and thirdly, when belt slipping did take place, the lower gear made l.p.a. not quite so formidable. I would rather suggest, however, that in those few cases where a fixed pulley is still in use, it be replaced with some variable type; it would not cost so very much more than a smaller fixed pulley, and would give a great deal more satisfaction.

Lamps.

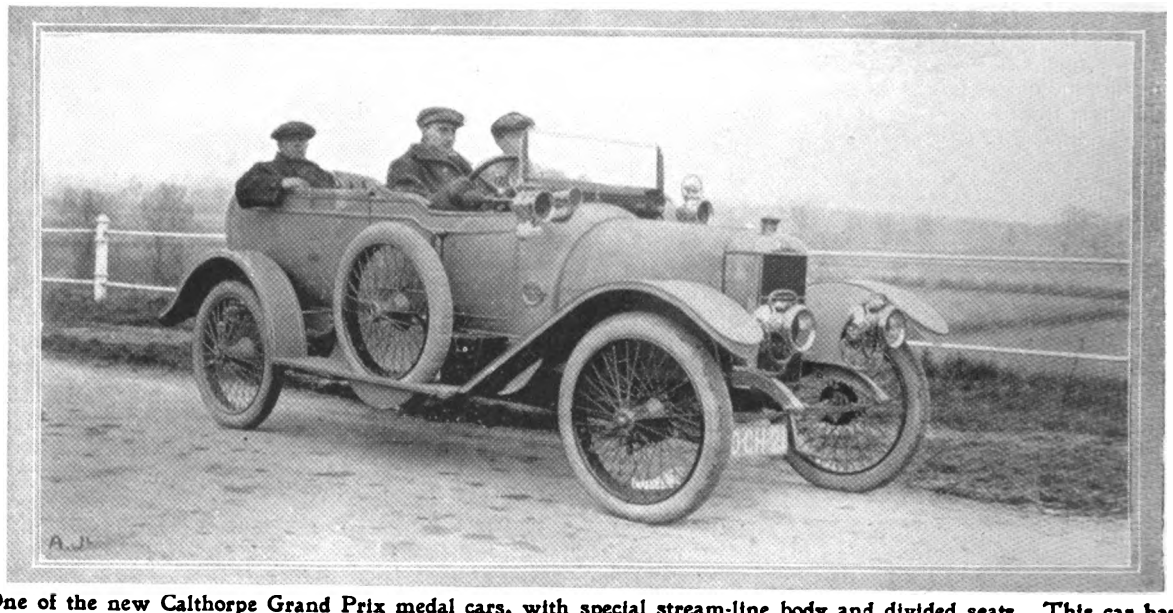
Acetylene lamps as in common use on motor cycles are rather apt to be unsatisfactory when called into use more often than usual, as they may well be during the winter months. This is generally due to the filter becoming saturated with moisture, to which small particles of lime, the residue of the calcium carbide, adhere, thus forming a paste that hinders or prevents the passing of gas. The filter is usually in the form of a felt disc, and this should now, and periodically throughout the winter, be removed, thoroughly dried and beaten free from the dust. I have also found it good practice to carry a spare filter; on the first signs of trouble this can be substituted, and a complete cure is generally the result. If any difficulty is experienced in removing the butterfly-nut holding the filter in place, a few moments' soaking in paraffin will, in most cases, render its removal with a pair of pliers an easy matter. The pliers should not be used with much force, however, or the needle-valve seating is liable to be twisted or broken off.

Lubrication.

In my novitiate days I was unable on one or two occasions during spells of cold weather to get the oil-pump to perform its function at all, owing to the increased viscosity of the oil preventing its flow between tank and pump. Since then I have made a point of discarding "air-cooled" in favour of "water-cooled" oil with the advent of winter. "Vacuum A" I have found to be most reliable for winter use.

Plugs.

In wet weather ignition troubles are likely to be abundant. The fault is usually a short between the plug terminal or magneto H.T. terminal and some portion of the machine, due to the water forming a conducting path for the current. An insulated cap to fit over the plug, such as is made by the Sphinx Manufacturing Co., is a certain preventive of the former, and should certainly find its place on all machines, not only during the winter but at all times. The latter will be limited to machines that are not of the "waterproof" type, and may be reduced to a minimum by the adoption of a rubber magneto cover.

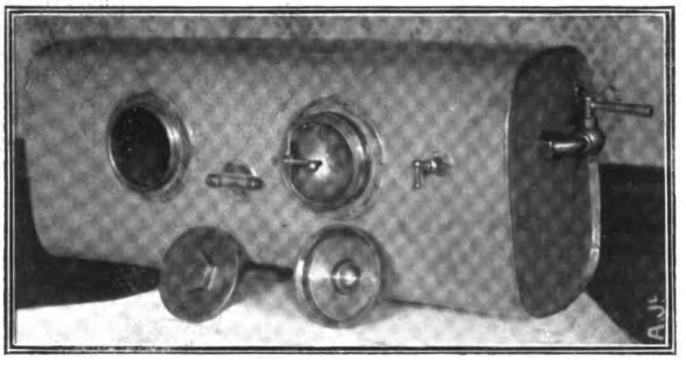


One of the new Calthorpe Grand Prix medal cars, with special stream-line body and divided seats. This car has an engine of 80 by 150 mm., and is very speedy.

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THE V.L. PETROL TANK.

No delay on the road is more annoying to the motorist than that caused by an empty petrol tank. Of course we all know that it can be reduced to a minimum by the simple expedient of always carrying a spare tin of petrol; but it is equally well known that more often than not the spare can is left at home. There are but few cars where



Top view of V.L. petrol tank, showing large size of filler-cap and inspection port.

it can be carried conveniently, and when strapped to the roof of a closed carriage or the running board of an open touring car, a petrol tin rarely, if ever, is an ornament.

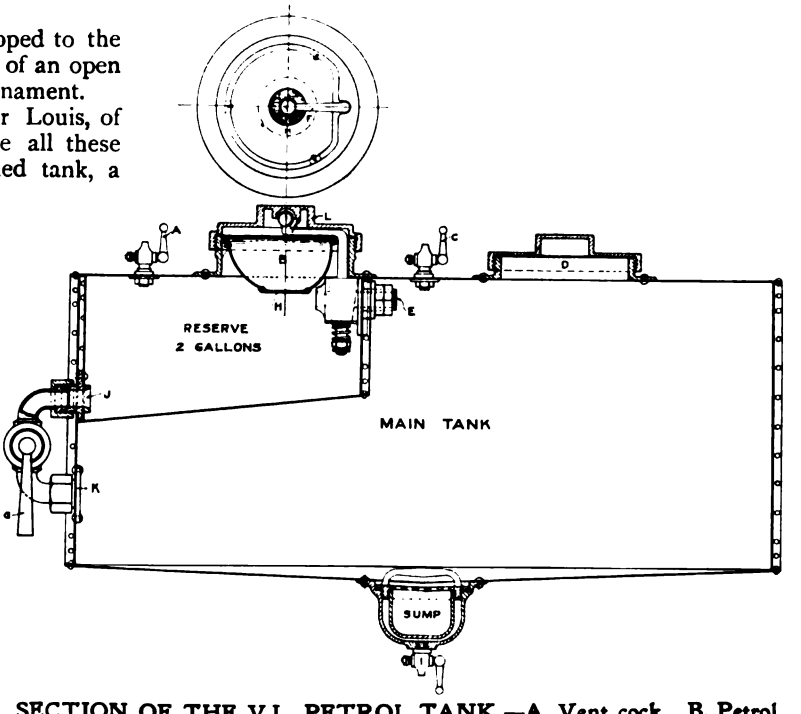
An attempt has been made by Mr. Victor Louis, of 18, Mount Street, Manchester, to overcome all these difficulties by means of a specially designed tank, a section and photograph of which are reproduced on this page. It will be seen that the interior of the tank is divided into two uneven parts, the smaller of which forms the top left-hand corner of the main tank, and is designed to hold two gallons of fuel, which are intended to be kept as a reserve. This reserve tank communicates with the main tank in two places, at the upper right-hand corner through the tap, F, and at the lowest point on the left through the tap, G.

Both taps are closed in the ordinary way and are firmly locked in this position so as to prevent any leakage of petrol from the reserve into the main tank or of pressure from the main into the spare tank. The handle of tap, G, which is used only in the case of the petrol in the main tank having been exhausted so that the reserve is called upon, is permanently held in a spring clip so as to prevent its being opened by accident, while the knob of the handle of the overflow tap, F, is held in a recess turned into the inner face of the filler-cap, L. The filler opening is provided with a funnel and double-gauze strainer, which are fixtures, so that no separate petrol funnel need be carried.

Although it may look somewhat complicated, the action of this tank is as simple as that of any ordinary pressure tank. When the tank is to be filled up, the filler-cap, L, is unscrewed in the usual way, which exposes the handle of the tap, F. This is pushed sideways, thus opening the tap. When the petrol is poured in, it enters the reserve tank, which is filled up because tap, G, is closed. When the level of the petrol in the spare tank has reached the opening of the tap, F, it overflows into the main tank. The result is that whether the latter is filled right up or only partly replenished, there is always a reserve of two gallons in the spare tank. Before the filler-cap, L, can be replaced, the tap, F, has to be closed, and the cap, when screwed home, locks it, as already stated.

Provided then that the petrol in the main tank has been used up and the engine has stopped in consequence, all you have to do is to open the communication tap, G, and the vent-cock, A, when the petrol contained in the spare tank is allowed to run into the main tank, whence it reaches the carburettor in the usual way. It is safe to presume that a reserve of two gallons of petrol is sufficient to take the car to a place where a fresh supply of fuel can be obtained.

Another noteworthy feature of the V.L. tank is the provision of a sump in which water and other impurities that are likely to find their way into pressure tanks may settle at the lowest point of the bottom without getting into the supply pipe. The sump is so designed that it can be unscrewed and withdrawn from above through the inspection port, D, which is large enough to admit a



SECTION OF THE V.L. PETROL TANK.—A. Vent cock. B. Petrol funnel. C. Pressure relief cock. D. Inspection port. E. Fuel admission to main tank. F. Admission tap. G. Communication tap. H. Gauze filter. I. Drain tap. J. Reserve outlet. K. Reserve inlet to main tank. L. Filler-cap locking admission tap, F.

man's hand and arm easily. No petrol is, therefore, wasted in the process of taking the sediment out of the tank.

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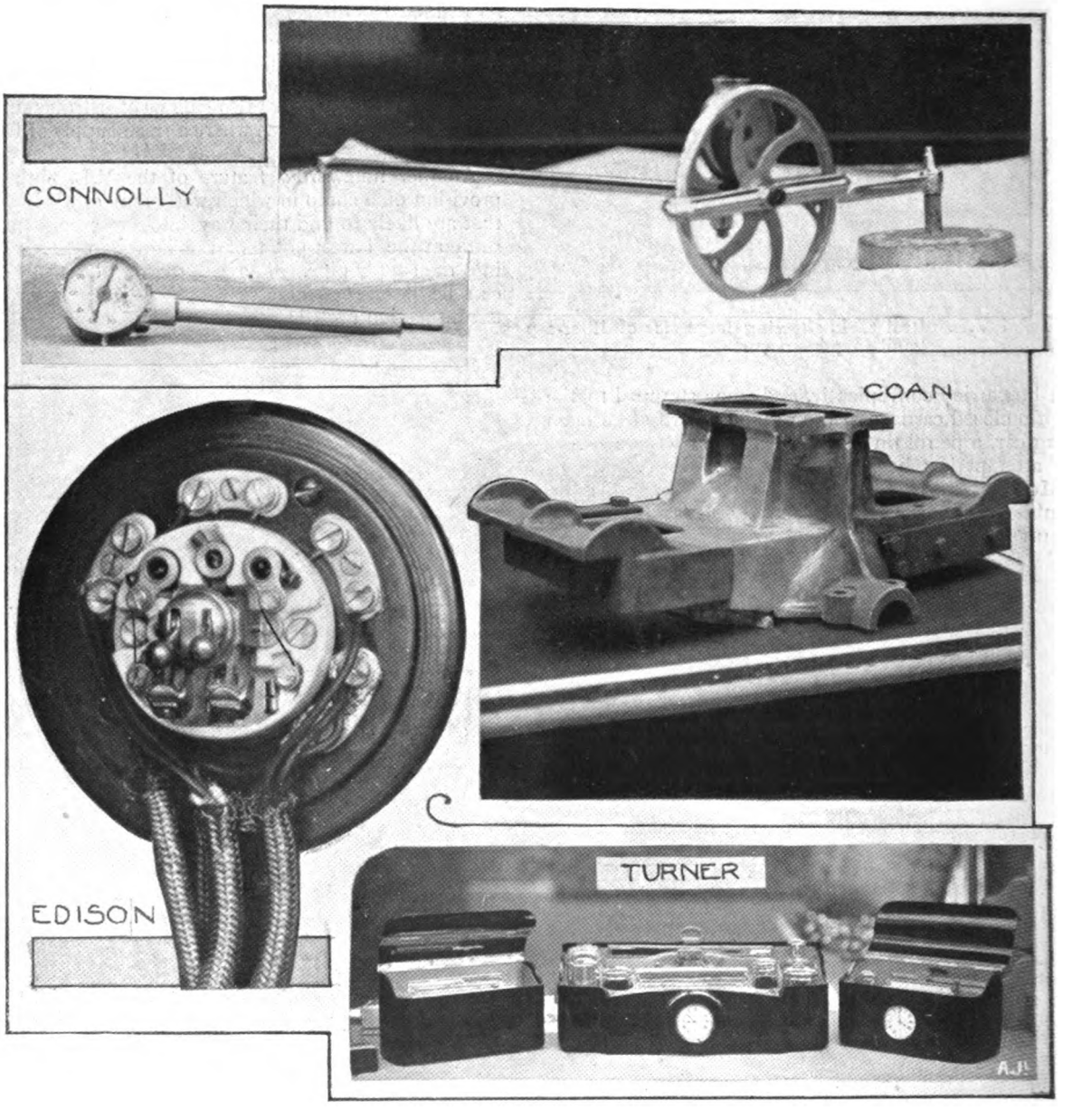
No Speed Limit for Streatham.

As was not unexpected, the strong opposition of the R.A.C. and the A.A. and M.U. at the local inquiry last October, has proved successful, and the Local Government Board has turned down the application of the London County Council for a ten-mile speed limit in the High Road and Tooting Bec Gardens, Streatham.

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ACCESSORIES OF THE WEEK.

COAN'S castings are, of course, a *sine-qua-non* in the motor trade, and while the numerous and varied number-plates, crank-cases and magneto bases are of great interest, we think the most attractive side of the business of this firm is that devoted to the repair of broken aluminium parts. At the show, a crowd was always to be seen examining repaired parts, and listening interestedly to an account of "how it is done." Coan only uses oxy-acetylene welding in a few cases and for small repairs, his usual process being to prepare the two broken surfaces, lay them in their proper respective positions in a mould, and then to run in new metal around the fracture, which new metal unites with both broken parts, and can easily be machined off when cold.



A VERY fine display was made by the firm of Ernest Turner, of 247-9, Pentonville Road, London, and of Manchester, at Olympia, of their motor cloths, window-straps in a vast variety of colours and materials, a number of ivory, mother-of-pearl, and composition door handles, and some very neatly fitted ladies-companion trays for fitting in the interior of cars. The window-straps and companion were particularly noticeable for the taste displayed in their design, the latter being replete with a number of really useful articles, instead of being over-burdened with all kinds of "fakements" which nobody ever wants to use.

THE Edison Co. showed on the Klaxon stand at Olympia their battery lighting set, complete with three lamps and a neatly designed switch, an illustration of which forms part of the small series of photographs. This switch can be wired to operate both side-lamps together and the tail-lamp separately, or one side-lamp and the tail on one

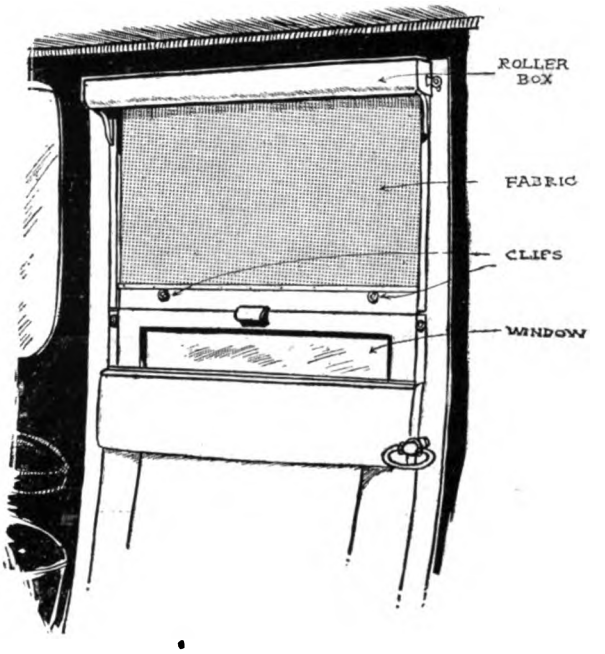
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circuit, and the left-hand side-light independently. Easily accessible fuse wires are carried inside the cover of the switch.

AN exhaustive collection of goods are sold by Messrs. Connolly Bros., including all kinds of enamelled leathers, Morocco hides, and "Paride," a combination leather and canvas covering for Cape-cart hoods and the like, and an interesting instrument, the "Areameter." This is a device for ascertaining in a moment the exact area of any irregularly shaped piece of hide. The base of the instrument is planted somewhere in the skin to be measured, which is laid out flat on a table, and the pointer or needle attached to the end of the arm is moved around the edge of the hide, following all the curves until the starting point is reached. A glance at the dial will then give an actual reading of the area. In the later models, the dial is attached to the top of the arm bearing the needle, so that the reading is even more easy.

A Screen for Motor Car Doors.

AN accessory which should find a ready sale amongst owners of enclosed cars is the new "Dustorfli" hygienic screen, which is illustrated in the accompanying sketch, as fitted to the window of a carriage. It consists of a spring roller blind made of a special green fabric, which, while it freely admits light and air, prevents any dust, flies, &c., from entering the carriage. The roller box, as well as the special runners for the screen, are very easily clipped on to the inside of the window framework, and the screen is then attached by two small clips to the top of the carriage window, so that when the window is dropped the screen takes its place, and when the window is raised the screen rolls back into its box. When it is not desired to use the screen, it is only necessary to

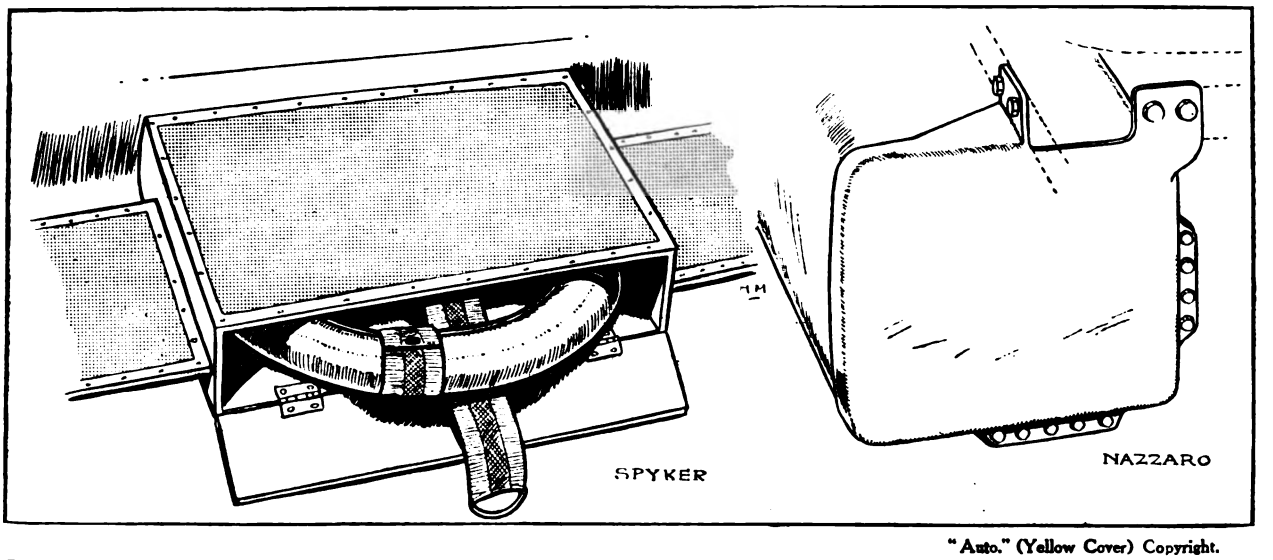


release the clips attaching it to the window. This fitting is being placed on the market by the Dustorfli Motor Screen Co., 39, St. James's Street, London, S.W.

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Negotiation of "Rest and be Thankful."

THERE are few motorists who would willingly tackle "Rest and be Thankful," and the other gradients of Glencroe, in the winter-time, but several Argyll cars regularly run between Glasgow and Dunoon and Inverary throughout the whole year. In writing to express his pleasure at a run on an Argyll car on December 1st, a visitor to Inverary Castle said, that although the car was a little late in arriving, it was not the fault of the driver. The top of the pass over "Rest and be Thankful" was a sheet of ice, and it took half an hour to get the car up the last thirty yards, the feat only been accomplished by the driver's coat being placed under the back wheels in order to get a grip. On the return journey the conditions were very dangerous, and the car slid a number of yards, with the wheels braked, down the ice slope, but the driver cleverly kept the car's head straight so that it hardly skidded to one side. The car arrived in Glasgow in plenty of time for the passenger's purpose, and the little car, which was a 15-h.p. landaulette, did the journey well under three hours each way.



"Auto." (Yellow Cover) Copyright.

DETAILS SEEN AT OLYMPIA.—How the spare tyre is carried under the footboard on the Spyker chassis. On the right, how the petrol tank is supported in pressed steel brackets on the Nazzaro chassis.

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; LORD MONTAGU OF BEAULIEU; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, W. M. LETTS, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.

Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, chairman (presiding); Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee: Messrs. Moores, Adey, Tyler, Emmerson, Holland No. 2, Shaw, Rawson, Dean, Wallis, Withill and Kahn.

The secretary reported that his inquiries regarding the theft of bagatelle balls had ended by the detection and confession of the guilty person, who turned out to be a member accepted from the show. In verifying the references given, the replies were not satisfactory. This, together with valuable information given by member No. 785, was the reason he, the secretary had stated at the previous meeting that he had no doubt of being able to place the person responsible for the theft. The balls had since been returned.

The committee discussed the pros and cons of the case, and instructed the secretary to return any fees paid, and also to make inquiries as to the truth of the statements made and report at the next meeting.

Mr. Moores moved and Mr. Tyler seconded that the person in question be expelled as an undesirable member. Carried unanimously.

The minutes of the previous meeting were read and confirmed.

Legal Department.

Application for legal aid was made by member No. 807 for exceeding the speed limit at Clapham Common, and by member No. 894 for driving the wrong side of an obelisk. The secretary having reported both members in benefit, the applications were granted.

The convener of the entertainment committee, Mr. J. Cates, reported that arrangements had been made for holding a smoking concert on Saturday, December 14th. The Society of Automobile Mechanic Drivers were visiting on Wednesday 18th, when he trusted that every member would be present, and assist in welcoming the members of the S.A.M.D. Arrangements were being made for whist drives. The programme would also contain—

A lecture by Mr. S. F. Edge, subject to be arranged.
A lecture by Mr. A. E. Berriman, "Magnetos."
A lecture by Mr. Brewer, "Carburation."

The Goodrich Tyre Company will show their cinematograph pictures, "From Tree to Tyre."

Mr. Wallis had arranged for a gymnastic display during the first week in January, and a night had been set aside for what would be termed "member's night." A member would talk of the car he thought the best. Others would follow and give their reasons for thinking some other car was superior. This should prove of real interest to the members. Concerts would be held frequently. A billiard handicap (members only) with three prizes, would be started at once.

Regarding the French classes, difficulty had arisen respecting the appointment of an efficient master. He hoped, however, to be in a position at the next meeting to report that Mr. A. E. Appleton, B.A., Oxford, had accepted the position.

Letters were read from Mr. Richardson (Sec. Borough Polytechnic), Mr. A. E. Appleton, Mr. W. H. May, Sun Insurance Co., Mr. Freeland, Mr. C. Andrews, Mr. P. Sutherland (Urquhart's Temperance Hotel, Aberdeen), Mr. D. McLennan.

A vote of thanks was given to Mr. M. S. Abrahams for gift of books to library.

Review of Events.

Members will note with satisfaction the addition to our shining lights of Lord Montagu of Beaulieu as Vice-President of the Society. We appreciate the honour bestowed upon us by the acceptance of the post by Lord Montagu. It is another link forged in the chain by which we hope to attain the objects of our Parliamentary campaign. Lord Montagu's connection with the motoring Press should be of use to the Society on occasions when your secretary needs advising in matters concerning the Press. I feel sure that Lord Montagu will have many proofs during the next twelve months that he has joined a real live society. We are going to make a noise during the year 1913.

Re the theft from the billiard room, had a lost child been found there could not have been more rejoicing than on the return of the stolen property. It is very annoying, and creates a feeling of insecurity when such things happen. Black sheep appear in every flock, and I congratulate the members upon the fact that we are spared the display of our badge by so unworthy a person, who no doubt joined with some dishonest intentions, by making a false declaration on his admission form. We were, however, covered by insurance, and if the committee do not prosecute in this case, it must not be taken as an inducement for any further acts of this description.

May I please take this opportunity of requesting the attendance of members to the various lectures, concerts, &c., being arranged for winter evenings. The Entertainment Committee have kindly given me permission to arrange and be responsible for a ladies' night. If you wish to see real beauty, make a note of this occasion. A member promises to present me with a lovely piece of carpet for the office providing I give an acrobatic display on the platform for the benefit of the ladies. He argues that it would be the star turn of the evening. He makes it a condition that I wear Cambridge blue knickers, white jersey with pink bows on the shoulders, and a skull cap with a feather in it. Is he pulling my leg or should I be better in a home?

Accepted for Membership.

Alexander G. Easter, Braintree	Alfred C. Beavin, Glasgow
John E. Webber, Brentford	Charles Huffer, Biggleswade
John Hannell, Greenwich, S.E.	Robert Pentland, Airdrie, N.B.
Samuel Wright, Putney, S.W.	T. V. Johnson, Bromley, Kent
William H. C. Wall, Basingstoke	Arthur R. G. Stockley, Mitcham

Applications for Membership.

S. A. Hardy, Wimbledon, S.W.	G. A. Hellawell, Pimlico, S.W.
P. A. S. Foot, Kensington, S.W.	Walter A. Keane, St. John's, Newfoundland
W. J. Ridgwell, London, S.W.	
J. P. Cook, London, W.	Charles D. Harris, Cardigan
Frederick Green, King's Lynn	G. L. Keen, Forest Hill, S.E.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2s. 6d. Subsequent subscriptions, 2s. per month. Payable in advance on the 1st of each month. Badges, 1s. 1d., post free. Members may pay yearly 21s., or half-yearly 10s. 6d., payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

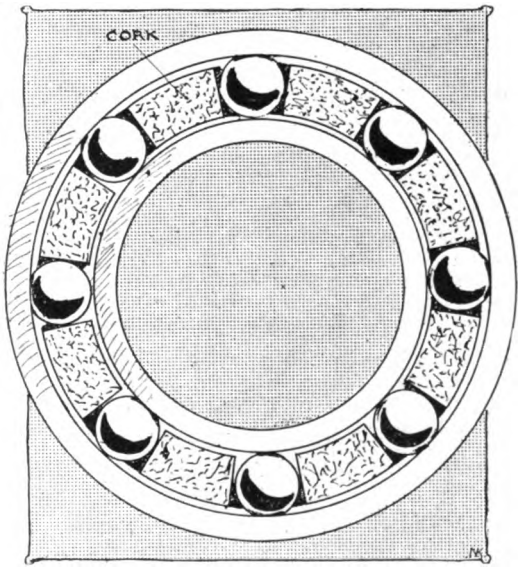
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Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

107.

TEMPORARY REPAIR TO BALL-BEARINGS.—A short while ago I found myself on the road with some of the balls in the bearing of the off-side front wheel broken. It was one of those unfortunate happenings that no one can prevent or anticipate, and that always happen when you least expect them. Well, here I was out in the country with nearly half the balls in the race cracked, but the bearing was otherwise not damaged. I had just over 30 miles to go to my destination, and it was out of the question that I could drive the car with the front wheel in that condition. Even if I sent a telegram for a new bearing I could not get it before a day and a-half. The



first thing to do was, of course, to order a new ball race, which I promptly did, leaving the car just outside the village where it had broken down. On my way to the post office I thought of the best way of getting to my destination without having the car towed or put on rail, and I had nearly given it up as a bad job when it occurred to me that quite half the balls in the race were still good and the two steel rings were not even scratched. If I succeeded in getting the remaining good balls spaced at even intervals around the race I might succeed in driving the car home under her own power. After trying various ways of holding the balls in their proper places without success I hit on the idea which is illustrated in the enclosed sketch, and which explains itself. From the local chemist I procured a number of small corks, such as are used for medicine bottles, trimmed them so that they were cylindrical—or as nearly so as I could get them—and "sprung" them into the spaces between the balls. Much to my surprise the race was almost as rigid as it had been originally, and when I had it refitted I found that the wheel was quite tight and showed only a very slight trace of wobble, certainly not more than a wheel on quite a good bearing that has had say about 5,000 miles of wear. I drove first very slowly and cautiously, but all went well, and although I did not go quite as fast as I should have done otherwise, I arrived safely at my destination. Indeed, the day after this happened I drove all day long a distance of about 70 miles with the make-shift ball race, so that by the time the new bearing arrived I had covered altogether about 100 miles with "corks" instead of a cage, and only half the number of balls in the race.

Considering that it is often very difficult to obtain new ball-bearings at short notice, I thought this might interest your many chauffeur-readers, as it may help them to get out of what is often a difficult position.—*G. Bond.*

108.

MORE EASY STARTING ON MAGNETO.—I was much interested in letter No. 106 on the above subject in your last week's issue, because it directly bears out an experience I had about eighteen months ago. I had just taken over a new 35-50-h.p. F.I.A.T., and from the first I had some difficulty in starting up in the morning. But, however much I looked after everything, I could find nothing wrong to account for it. I had almost got used to the hard work of starting up, but it came to a climax one morning while we were staying at Bournemouth on our way home from a tour in Wales and the South-West of England. Half an hour before I was ordered I went to start up the engine, but it was "no go." It is not exactly child's-play to swing a big Fiat engine, and after 20 minutes hard work and a good deal of worse language I got some help, had her pushed out of the garage to the top of the hill, outside the Royal Bath Hotel—many chauffeurs know this hill—and I let her run down there, which, of course, started up the engine just in time for me to be at the door punctually. After this, all went well that day, and after some roving about the New Forest we spent the next night at Winchester. Next morning I found it the same hard job to start up, but being prepared I allowed a full hour for it, and when she refused to start the first time of asking, I overhauled the engine very carefully.

First of all I looked at the carburettor, had it out and to pieces, but it was quite clean and no air leaks anywhere, plenty of petrol, and all passages clear. So I put it back, and tried the magneto. Out came the make-and-

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break, but no oil or dirt anywhere, and the rocker worked freely. Spark-gap and armature cover next came off, but everything was spick and span, all terminals were tight, and no loose contacts. I then tried the gap of the platinum points with the gauge, and found it to be quite accurate. As I had failed to account for the difficulty I tried different adjustments of the gap, because this was the easiest adjustment to make. I first closed it up slightly with no result, then I opened it so that the gauge had a good deal of play when the points were separated and much to my surprise the engine started at the first turn of the handle. On our run that day the young boss drove the car, he noticed a distinct improvement in the "pulling" of the engine and asked me what I had done to it. There is no doubt that since then the car runs better and, what is more important, starts even on a cold morning with but two turns of the handle.—*Holland No. 2.*

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

GREAT NORTH ROAD.—Full width of road under repair and roller working 7 miles north of Grantham; roads are in a dirty state in this district. Re-metalling operations between Darlington and Ferryhill have been suspended owing to the frost.

LANCASHIRE.—*Preston-Blackpool Road.*—Full width in very soft condition in Long Lane, Aston, 2 miles west of Preston.

Blackpool-Poulton Road.—Members are warned to slow through Poulton-le-Fylde and district, also through Garstang, 10¾ miles north of Preston.

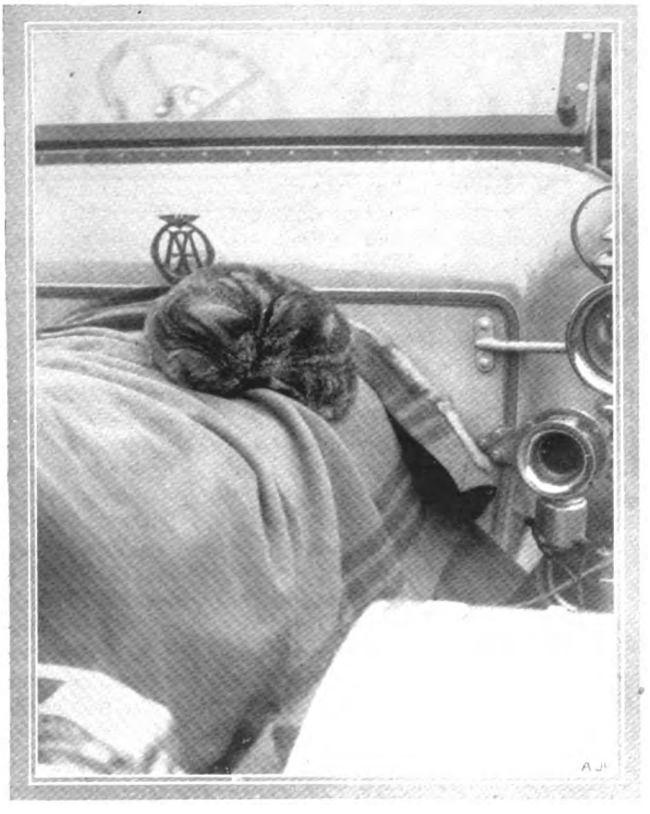
Very rough surface and frequent holes between Bamber Bridge and Standish.

YORKSHIRE.—*York-Malton Road.*—Under repair 8 miles from York, 20 yards of loose metal full width of road, left at night, roller working.

Harrogate-Leeds Road.—Humphrey Bank and Harewood Bank are likely to be dangerous owing to the frost and snow.

EAST.

ROYSTON-NEWMARKET ROAD.—About 20 yards of water under the Railway Bridge at Pampisford Station.



A SNAP DURING THE RECENT COLD SNAP.—A sagacious cat finds a warm spot on the bonnet of a car outside the Gatwick Golf Course.

SOUTH.

BATH ROAD.—Members are warned to slow through Hounslow and Colnbrook; also through Maidenhead. Under repair between Calcot and Thatcham; between Church Street and Station Road, Twyford. Members are warned to drive slowly through the west of Twyford; also between Wargrave and Henley, as the road is in bad condition. Re-metalling at Kennett, Cherhill, Studley, Bath-easton, and Brislington.

BRIGHTON ROAD.—Members are warned to drive with special care between Sutton and Reigate Hill, especially at Burgh Heath. Improvements in hand between Bolney and Hazeldene, 14 miles from Brighton, roller working.

EASTBOURNE ROAD.—Sewer being laid on Godstone Hill, only room for one car to pass.

HANTS.—*Basingstoke District.*—Re-metalling between 47th and 48th milestones full width on the Winchester Road, lights at night.

Under repair between Mapledurwell and Basingstoke, loose metal is left at night, no lights. Under repair full width between Dean Gate and Ash Grove Road, on the Salisbury Road.

Winchester-Bournemouth Road.—Iford Bridge, Christchurch, will be closed to traffic from 7 a.m. on the 11th inst. to 7 p.m. on the 12th inst., owing to repairs to the roadway.

LONDON DISTRICT.—On account of timing operations, special care is necessary at the following places: Regent's Park Road, N.W.; near Church End Station, Finchley; Golder's Green; between Redcliffe Gardens and the Boltons, Earl's Court Road, S.W.; on the road that crosses Clapham Common from the top of Balham Hill to Battersea Rise; Victoria Embankment; Albany Gate, Regent's Park; Mitcham; Morden; Sutton; Banstead; Croydon; Purley; between Wimbledon and Ewell; Hounslow-Staines; Hounslow-Colnbrook; Harlesden; Maida Vale; Highgate; Holloway; Lewisham; Sudbury tram terminus to Harrow Hill.

SURREY.—*Kingston-Leatherhead Road.*—Members are warned to slow down between Chessington and Hook, as a control may be working.

Portsmouth Road.—Flashlight controls are likely to be working between Kingston and Esher.

Eastbourne Road.—Members are warned to drive slowly, as a control is likely to be working near Kenley Police Station, and at the Gas Works, Whyteleafe.

Lingfield Races take place on the 13th and 14th of December.

WEST.

NORTH WALES.—The undermentioned roads are in a deplorable state:—Between Pentre-Foelas and Denbigh, for 4 miles over the Moors; between Capel Curig and Pen y Gwryd, whole length 4 miles, and between Blaenau Festiniog and Dolgelley, certain parts are very bad.

SHREWSBURY DISTRICT.—*Hereford Road.*—Re-metalling full width of the road at Brown Hill, 10 miles from Shrewsbury.

GLOUCESTER-BRISTOL ROAD.—Coaley Parish, between the 10th and 11th milestones from Gloucester, roller working, tarring whole width, clear at night.

CHELTENHAM-OXFORD ROAD.—Cheltenham Parish, roller in operation, re-metalling whole width, protected by lights.

LAUNCESTON-BUDE ROAD.—There is a dangerous corner in the parish of Werrington on this road 3 miles north of Launceston and members are warned to drive slowly.

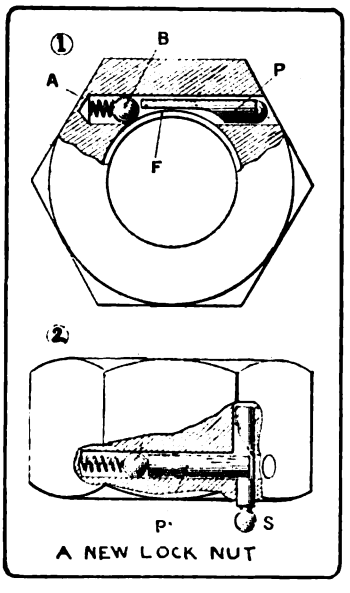
MIDLANDS.

COVENTRY ROAD.—Members are warned to exercise special care between the 18th and 20th milestones, also from Markyate to Hockliffe and between the 37th and 39th milestones, as the road is breaking up at these places and is dangerous to traffic. Tarring being laid at Sheldon, 6 miles from Birmingham, half width, lighted at night.

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FOREIGN MISCELLANY.

A new lock nut.—Some of the devices sold for the purpose of preventing the loosening of nuts are too complicated, others will not allow the nuts to be used again after having removed them, while still others do not lock at all, and are useful only in creating a fool's paradise for the benefit of the user, which suffers an abrupt abatement when he is landed in the ditch through something coming adrift. The "Kiblok" nut is certainly simple enough in its operation, but the means required to put the locking part out of action, so as to enable the whole to be removed, is somewhat elaborate. A hole is drilled in the nut, tangent to the thread, and in this a spring and ball, A and B, are inserted; it will easily be seen that the action of the ball is to recede from the bolt when the nut is being tightened, while it will act as a wedge to prevent the latter coming loose. To unscrew the nut, the plunger, P, is forced inwards which removes the ball from contact with the thread, F^1, of the bolt. The inward motion of P, is obtained by means of the second plunger, S, which has an inclined plane milled out of it so that pulling it outwards, forces in the plunger, P.—*Omnia.*

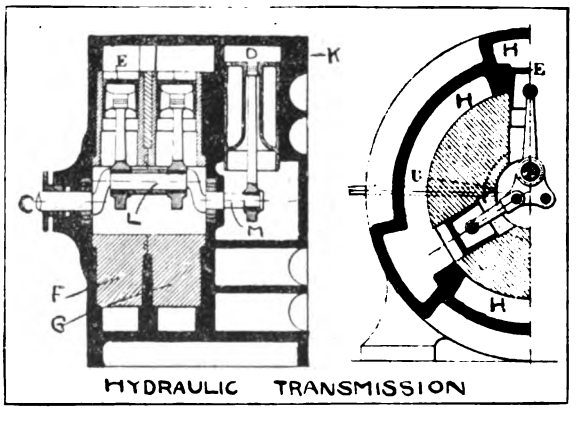


A NEW LOCK NUT

Tribulationes de Minutiis.—The little things left undone frequently give more troubles than the big things done. The beginner with his car does not worry over lack of balance in the crank-shaft; over too heavy pistons and reciprocating masses; over mis-alignment of cam-shaft or crank-shaft bearings; over valve timing; but he has his troubles with such little things as grease-cups that cannot be turned up without disfiguring the fingers; fan-belts that are too slack and cause some heating troubles or a perceptible loss of power; electric bulbs for speedometers that go out of commission the first or second week they are in use; fasteners on door-pockets that will not stay fastened; top-slips that will not slip on without the aid of a few hired men; steering-gears that are sent out poorly adjusted, requiring the purchasers to make several trips to the dealers before they are working satisfactorily; tool boxes into which the tools are dumped in promiscuous fashion without any regard to classification or frequency of use; tyres which are grossly under-inflated so that the buyer has good opportunity of ruining them before he is aware of the fact that they are not inflated to the proper pressure; and one score of other tribulationes de minutiis, the little troubles, parts the buyer expects are in first-class order when the car is delivered but which he finds a month later were not in 100 per cent. order when purchased.

These little things are the ones that cause the repair bills to mount up during the first few months in the owner's hand. These are the troubles that the factory engineer would not lower his dignity to discuss or write a letter of information on to the worried owner; his time is over-occupied on splined gearset-shafts, grinding transmission gears, selecting self-starters, and a few of the other big engineering problems which every man, who purchases a car, has a right to feel are properly designed and manufactured. Yet these are the things that the owner has a right to better attention on than he is receiving from many dealers now.—*Motor Age.*

A hydraulic transmission.—As usual this device consists of a pump element and a hydraulic motor, the latter being formed by three radial cylinders situated in the main casting of the apparatus, K. Before proceeding to a description, it should be remarked that the diagram reproduced herewith contains an error in that the driving-shaft, C, which actuates the pumps by means of the crank, L, is shown as being one with the driven shaft and crank, M, which is actuated by the hydraulic motor, D, &c. This second shaft is, of course, entirely separate, and should be produced to the right in the drawing. The pump element consists of twice three radial cylinders, E, each group of three being formed in a separate disc-shaped casting, F and G, contained within the main casting, K, and arranged so that the relative position between them (the two disc-shaped castings) can be altered by means of a bevel-wheel and pinion, U. The six pump-pistons are worked off one crank, L. If the two discs in which the pump-cylinders are formed are rotated until the cylinders are grouped two and two together, the delivery into one of the three chambers, H, from each two of these pumps will be equal to the sum of their deliveries, as their delivery strokes occur simultaneously. Now if the two discs be rotated so that the cylinders are no longer parallel, two and two, the delivery will gradually decrease as the delivery strokes are now no longer simultaneous; by the time the discs have been rotated through 180° the delivery stroke of one pump will correspond with the suction stroke of the other, the resultant output being nil. In this way a delivery varying from unity to zero can be obtained, while rotating the discs in the opposite direction reverses the direction of flow of the actuating fluid.—*Le Genie Civil.*



HYDRAULIC TRANSMISSION

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Progress at Northumberland.

EVIDENTLY a progressive spirit prevails with the Northumberland County Council, which has just decided to purchase seven motor cycles for its surveyors, at a cost of £53 each.

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RACES, RECORDS, AND TRIALS.

A.C.U. Silencer Trials.

ARRANGEMENTS are now being made by the Auto-Cycle Union to hold the silencer tests, which were to have been held this month, during January. Part of the tests will be carried out at Brooklands, and part at the works of Auto Carriers, Ltd., at Thames Ditton. For the tests at Brooklands, silencers that are suitable for attachment to any make of motor cycle will be fitted to a 3½-h.p. Rudge motor cycle, and this, as well as the other machines, of which the silencer is an essential part of the system, will be ridden by an official of the Union at definite speeds, throttle openings, &c., both with and without silencers and exhaust-pipes. Tests will also be made on the level and up hill to determine the engine efficiency, and in these the machine will be ridden by the entrant's driver. At Thames Ditton the silencers will be tested when fitted to a 3½-h.p. Blumfield engine. Data will be obtained with the engine running at 1,000 and 2,000 r.p.m., and the noise of the various silencers will be measured by Col. Holden's audiometric apparatus. The judges appointed are Col. H. C. L. Holden, R.A., C.B., Dr. William Watson, Dr. A. M. Low, Mr. A. Sharp, and Mr. J. W. G. Brooker.

A Cycle Car Trial.

ONE of the first reliability runs to be specially arranged for cycle cars will be held by the Sutton Coldfield and Mid-Warwickshire A.C. on Saturday next, the 21st inst. The route will be from Hall Green, Stratford Road, Birmingham, *via* Stratford, Sunrising Hill, and Warmington Hill to Banbury, where a stop will be made for lunch, returning over the same route. The competition is confined to members of the Club, and full particulars can be had from Mr. F. W. Finnemore, 122, Colmore Road, Birmingham.

Testing a Friction-Driven Car.

FROM October 21st to November 12th a trial over a distance of nearly 2,000 miles was conducted by the R.A.C. with a 10·4-h.p. Pilot car in which the power from the engine is transmitted through friction discs, which thus provide a change-speed gear. The route followed was from London to Andover, Shaftesbury, Exeter, Land's End, Bristol, Gloucester, Preston, Carlisle, Lanark, Stirling, Perth, Blair Atholl, Inverness, Tain, Bonar Bridge, Clashmore, Helmsdale, Berriedale Hill, Wick, John o' Groats. The return from John o' Groats to Stirling was over the same course, thence to Edinburgh and by the standard R.A.C. route to London. On the outward journey the above route was accidentally departed from between Stirling and Perth, the road *via* Dollar and Milnathort being taken instead of that *via* Dunblane and Auchterarder. The total distance covered was 1,924 miles.

The car was driven throughout the trial at an average speed (running time only) of 18·03 miles per hour.

The petrol consumed during the trial was 70·43 gallons, being a consumption of 27·33 miles per gallon, or 19·47 ton-miles per gallon. The lubricating oil put into the engine during the trial was 4·53 gallons, being a consumption of 627 miles per gallon.

Five pints of water were used during the trial. During the trial the gear was changed from top to a lower gear upon 258 occasions.

The following time was spent *upon the road*—

Miles Completed.	Nature of stop.	Duration of stop. h. m.
352½	Lost pin from off-side back brake. Brake tied up with string	0 8
	(*At* 376¾ *miles the car skidded into the ditch and buckled near-side back wheel.*)	
1,143	Driving chain came off twice during ascent of Berriedale Hill	Time not taken
1,275	Driving chain came off twice	0 4
1,286½	*Off*-side back wheel collapsed. Fitted two new (*wooden*) wheels	1 10
1,293¾	Fitted new back axle, owing to ball bearings being destroyed, and new break bands ...	4 20
1,668½	Adjusted friction discs on Ferryhill	0 10
1,680½	Adjusting-bolt of friction disc broke	0 20
1,693½	Inspected friction discs	0 5
1,697¾	Driving chain came off	0 5
1,709	Friction discs would not release, adjusted ...	0 25
1,709	Adjusted chain and back brakes	0 6
1,715	Adjusting-bolt of friction disc broke	0 15

On many occasions during heavy rain, water caused slipping of the friction discs, sometimes causing the car to come to a standstill.

In addition to the foregoing work done upon the road, the following work was done in the motor-house :—

Miles Completed.	Nature of work done.	Time taken. mins.
418¼	Fitted near *near*-side back wheel, buckled by skidding, and replaced pin in off-side side brake	50
661½	Adjusted side brakes	10
661½	Adjusted near-side back mudguard which was chafing tyre	5
661½	Bored holes in under-shield to prevent water collecting and coming into contact with friction disc	15
661½	Cleaned filters of petrol tank and carburettor ...	10
916¾	Adjusted friction discs : adjusted back brakes and tightened driving chain	15
1,054	Fitted new nut to bolt of driving chain	30
1,054	Adjusted back brakes	10
1,186½	Adjusted driving chain and back brakes	11

After the road portion of the trial the car was driven to the Brooklands Track, its speed over the flying half-mile being 37·79 miles per hour.

A hood was fitted after 661½ miles had been covered.

For approximately half the time the weather was fine; in Scotland very heavy rain was encountered and some heavy snow-storms. The roads were heavy for about two-thirds of the distance.

The capacity of the petrol tank was such that it had to be refilled during the day's run (shortest run 121 miles). The car was oiled and greased every day in the motor-house.

When ascending Ferryhill there was much slipping between the road and wheels.

The following are the particulars of the car :—

Bore and stroke of 4-cyl. engine...	65 mm. × 110 mm.
Weight of car at start, front axle ..	636 lbs.
,, back axle...	590 ,,
Total weight of car	1,226 ,,
Average weight of load	370 ,,
Total running weight	1,596 ,,
Wind resistance area of two-seated body	10·45 sq. ft.
Gear ratios (the friction drive is arranged to give five speeds and reverse), all approximate—	
Top speed	4 to 1
4th ,, ...	5 ,, 1
3rd ,, ...	6 ,, 1
2nd ,, ...	7 ,, 1
1st ,, ...	10 ,, 1
Size of tyres	700 mm. × 80 mm.
Nature of wheels	Wire, fixed
Country of origin	Great Britain (French engine)

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A Cheap Surface for Roads.

EVER on the lookout for improvements in road materials, &c., Mr. H. P. Maybury, the Kent C.C. surveyor, has obtained good results with a surfacing consisting of crushed shingle, sand and bitumen. Besides having the advantage of a lengthy life, the combination is very cheap and it is proposed to use it extensively for Kentish roads.

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CORRESPONDENCE.

The Proposed Cycle Car Trial.

SIR,—I must really write and thank you for the, to me at least, most valuable article on "A Cycle Car Trial." It is most comforting, for I have just returned from the first meet of the Cycle Car Club somewhat depressed at the greater speed, when running, of the larger engined "more sporting" vehicles. If the trial can be brought off I shall be keen to enter one of my "Cycars," and I would suggest, for, I take it, all thoughtful motorists read your journal, that marks be lost for the dirty and wet condition of the occupants on arrival at the various controls, also for inefficient mudguarding.

It seems to me that the tandem vehicle would be able to make a better show, all other things being equal, than the sociable; the former may suit the traveller, but not the family man.

A. E. PARNACOTT.

The Unofficial Tyre Trial.

SIR,—As a private motorist I have closely followed the controversy between the R.A.C. and the Challenge Rubber Mills. So far as I can see there is an unanswerable indictment of R.A.C. methods. I am forced to the conclusion and with considerable regret; I would prefer that the R.A.C. as the governing body could establish its position in this matter. If the R.A.C. is, as it certainly appears, working with the trade and suppressing a new competitor whose tyre may be better value to me, then the position of the R.A.C. as the protector of the private motorist is very seriously assailed.

I am glad that the R.A.C. has at last replied, because we may now get the whole truth and know to what extent the Government of motoring continues to merit our confidence. May I suggest, therefore, that the R.A.C. might properly consider the following:—

1. If the R.A.C.'s *sole* reason for declining the tyre trial was, as stated (that Victor tyres could only be purchased from headquarters), why was that reason not communicated to the Challenge Rubber Mills?

2. Do we correctly understand that there was no mention either in the regulations or throughout the negotiations of the necessity for buying any of the test tyres through stockists? If not, why is this point *now* raised?

3. Is it, or is it not the fact that it was specifically understood that the tyres were all to be bought privately from headquarters?

4. Did the Club ask the Challenge Company whether there were any Victor tyre stockists or *not*? If not why not, seeing that it was so important a matter?

5. What steps, if any, were taken to discover whether Victor agents existed about the country? Are we to understand that the R.A.C. communicated with all the tyre dealers?

6. If, as I understand, the R.A.C. is ready, first to conduct a trial of Victor tyres by themselves and afterwards conduct a comparative test of Victor tyres against other tyres, will not the selection of tyres make exactly the same difficulty as now, assuming no Victor agents exist?

7. If there is a strong objection to buying test tyres from headquarters, will not that objection be equally strong in both the cases indicated in No. 6? If so, how does the R.A.C. propose to overcome the difficulty and why cannot it be overcome to-day? If not, wherein are the conditions likely to be changed?

8. Is it or is it not a fact as stated by Mr. Yarworth Jones that a *joint* meeting of the Trade Society and the R.A.C. was held *at the Club House* the day before the R.A.C. declined to proceed with the test and that *three* reasons were given for not proceeding, not one as now stated by the Club? Is it or is it not the fact that the reason given by Mr. Yarworth Jones was *one* of the *three* reasons which the joint meeting decided made it impossible for the Club to go on with the test? Is it or is it not the fact that this one reason read as follows: "That the proposed test was to be carried out without the consent or co-operation of the three manufacturers." If there were *three* reasons and this is *one* of them, is not the R.A.C. convicted of the *Suppressio veri suggestio falsi*?

These are the questions which it seems to me the Club should answer. I observe that Mr. Yarworth Jones has undertaken to give the third reason when the Club replies to his statement concerning the one he quotes. I shall be particularly interested, therefore, to observe the nature of the Club's reply, and sincerely hope that it may be able satisfactorily to dispose of all the doubts and difficulties which its action has given rise to.

12, Culford Mansions,
Cadogan Gardens, S.W.
December 7th.

TENTERDEN.

A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

A Motor-Cyclist's Address Wanted.—A Chelmsford motor-cyclist has sent in a communication to the Association without giving his full postal address. If he will write again, his request will receive immediate attention.

Special Road Notes.—Owing to very inconsiderate driving of several cars through Wolverhampton, it is likely that the police authorities will institute prosecutions against motorists driving at a speed dangerous to the public. The Association is also informed that unless a general improvement takes place, a speed limit application on behalf of the town may follow.

The Association learns that the road from Helmsley to the top of Sutton Bank, *via* Rievaulx and Scawton, is not now suitable for motor traffic. There is a much better road *via* Sproxton and Waterloo Lane. Members are advised to use the latter road by proceeding out of Helmsley over the bridge over the Rye, and then taking the first turn to the right (near the Nelson Gate leading to Duncombe Park).

Side Lights for Side Cars.—The attention of the Association has been drawn to the danger which exists to motor cyclists, and to the public generally, by the absence of lights on side cars attached to motor cycles being used at night. As a rule it is almost impossible for drivers of passing or overtaking vehicles to notice the side cars until they are almost too close to avoid running into them. Therefore it would appear that motor cyclists driving with side cars after dark should, in their own interests, as well as of other road users, carry lights on the side of their cars as well as on their machines.

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PARAFFIN FUEL FOR STANLEY STEAMERS.

FOLLOWING up our brief description of Stanley steam cars in November 30th issue of the AUTO., a feature in connection with these cars is worthy of note, viz., their ability to burn paraffin as fuel. Those of our readers who are acquainted with Stanley cars will remember, no doubt, that up to now the manufacturers always advised Stanley owners against the use of paraffin. But bearing in mind the increasing cost of petrol, and having attained very successful results from experiments with paraffin burners, it was decided to carry out a final series of road tests during the winter months of 1911–12 with a view to producing a reliable paraffin burner for use on these cars. An exceedingly simple and reliable burner is the result, so that the already low running costs of these cars can now still further be reduced. The prices of these new burners are, for the 18-inch size, £6 10*s*., and for the 23-inch size, £9 15*s*. A charge of £1 5*s*. is made for fitting. Further particulars can be obtained from the makers, Stanley Steam Cars, Ltd., Tyne Works, Gateshead, or Victoria Works, Ashtead, Surrey.



A fleet of Crossley cars supplied by the Jowett Motor Mfg. Co., Ltd., for the use of the Council and officials of the Bradford Corporation.

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CURRENT ITEMS OF INTEREST.

Next Year's B.I.T. Races.

THERE appears to be a possibility that some half a dozen American motor boats will visit England next year in connection with the races for the British International Cup, and it is not unlikely that the American Eliminating Trials may even be held in British waters. It is also hoped that France will again make a bid for the Trophy, as M. Ricardo Soriano is considering the question of challenging on behalf of France.

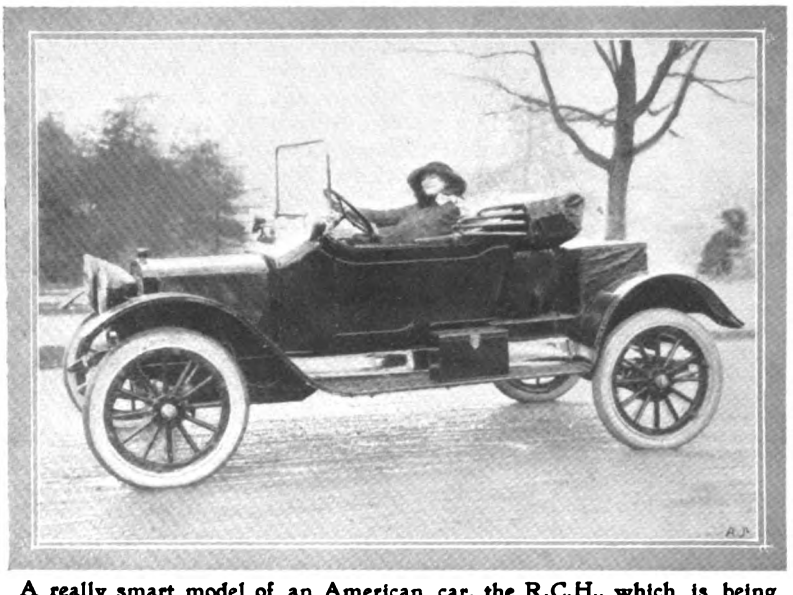
Already the Royal Motor Yacht Club has been considering the question of the races, and it has been decided to hold the eliminating trials to choose the team of three defenders on the nearest convenient date to June 15th. It is probable that the races for the Trophy will take place the week after Cowes' week.

Those Edgware Road Trams Abandoned.

ALTHOUGH the Highways Committee of the London County Council recommended the Council to push forward the scheme to construct tramways along the Edgware Road to the Marble Arch, both the Finance and Parliamentary Committees recommended that the scheme should be abandoned. Their counsels have prevailed, and at their meeting on Tuesday the Council decided to abandon the scheme. The Finance Committee thought that the Highways Committee were over sanguine as to the support likely to be obtained, and the Parliamentary Committee thought that it would be useless to proceed with the scheme for more or less technical reasons.

B.M.B.C. Races at Monaco.

ON six out of the seven days at the Monaco Motor Boat Meeting, to be held from April 5th to April 11th next, will be races in which the B.M.B.C. 21-ft. class can take part. The biggest prizes will be in the Criterium handicap, on April 9th, when they will include the B.M.B.C. 100-guinea Cup and £156 in cash.



A really smart model of an American car, the R.C.H., which is being handled in this country by Messrs. Byrom and Co., of Great Portland Street, W. Identical cars of this type are finding considerable favour in all directions, amongst those who are using them being Sir Horace Plunkett, Mr. O. C. Morison, the well-known aviator, &c. The outside price for this model is £225, including most fittings requisite to a motorist's happiness. The rating is 15·9-h.p.

Cab-rank Telephone at Kensington.

THE open-air telephone installed experimentally a couple of years ago by the C.M.U.A. in the Kensington High Street, at the corner of Melbury Road, has proved a great success. The Association are, however, not in a position to continue its maintenance, and an appeal has been issued by Mr. H. Lyon Thomson to residents in the Holland Park district, who have benefited by the telephone, that they should contribute say 2s. 6d. per annum towards its maintenance, which amounts to about £7 per annum. Contributions may be sent to the Secretary, Mr. F. G. Bristow, 89, Pall Mall, S.W.

The Association will be glad to receive suggestions as to other suitable points where cab-rank telephones might usefully be installed. If the neighbouring residents would undertake to defray the cost in such cases, the C.M.U.A. are prepared to carry through the whole of the arrangements for the installation.

A Tourist Trophy for Motor Cruisers.

THE Marquis de St. Mars, who, it will be remembered, presented the tourist trophy for motor cycles, has offered to present the Royal Motor Yacht Club, of which he is a member, with challenge trophies to be awarded in a long distance race for motor cruisers next season. The rules and conditions regulating the competition are now being drawn up and will be published as soon as possible.

Arduous Work for a Car.

TWO cars, of the 16–20-h.p. type, which have been ordered from the Wolseley Company through their Australian Agent, by the Australian Government, for the use of officials in connection with the Trans-Continental Railway, will have by no means an easy time, as they will be used almost exclusively where no roads exist. Special bodies are being designed and constructed in which the front seat is arranged so as to lower and provide sleeping accommodation in the car, a necessity, in view of the hundreds of miles which the car will have to traverse far away from hotels, &c.

B.M.B.C. Winners.

No less than 56 boats won prizes in races given under the auspices of the British Motor Boat Club during the past season. The list is headed by Mr. C. Lance Gamble's "Dyack," with a total of 16 prizes, including nine firsts, four seconds, three thirds. Mr. G. Paxton, Junior's, "Braemar" is second, with 14, including seven firsts, Mr. H. Hollingsworth's "Cordon Rouge" third, with a round dozen, while Dr. Morton Smart's "Angela" and Mr. Mawdsley Brooke's "Baby VI" share fourth place with ten each. Mr. J. H. Bell's "Fascination" deserves special mention, as although she stands ninth with eight awards, they were all first prizes.

What Middlesex has Gained.

IT is announced that since the Motor Car Act, 1903, came into force, the County Exchequer of Middlesex has received £21,064 1s. from fees on motor cars, &c.

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New Motor Law for Norway.

THE new law regarding motors, which has been passed by the Norwegian Storthing, and which comes into force on April 1st next, is not very encouraging from the motor point of view. It calls for the registration of motor cars, while a deposit of about £55 per car is to be made to cover claims against the owner or driver; the latter must hold a certificate of proficiency. In towns the speed limit is fixed at 9¼ miles an hour, and 21¾ miles per hour is the limit for open country. A tax ranging from $\frac{5}{6}d.$ per h.p. for cars of not more than 6-h.p. to $\frac{1}{8}d.$ per h.p. for cars of more than 12-h.p. is to be levied, but it may in certain cases be reduced or waived, and will not be levied on cars imported by foreigners.



A very attractive B.S.A. two-seater for doctors' use, which costs only £350 complete as illustrated. It has a well-built chassis and the famous Daimler-Knight 4-cyl. engine.

Where to Motor in Winter.

Now that the Riviera is beginning to lose its attraction for the motorist owing to the poor way in which the roads have been maintained during the past few years, and also through the rapid encroachment of the tramway system, the Touring Department of the R.A.C. comes forward with a few suggestions as to where to spend the winter. Algeria and Tunisia are greatly increasing in popularity as winter touring grounds, while a large number of motorists, we are told, now take their cars to India for the winter months; but the palm must be given to Ceylon, where the scenery is beautiful and varied, roads are good, and supplies are easily obtainable. Malay States is also recommended, while for those to whom distance is no object South Africa might have strong claims. Coming nearer home, Portugal is mentioned as offering some attractions, but the bad roads in the south of Spain practically bar it to tourists. The conditions in Sicily and southern Italy are not promising, owing to the bad roads, but the Italians realise their deficiency by making every effort to improve the highways, so that in a few years it is likely to become a popular winter resort for motorists.

Don'ts for "Klaxon" Users.

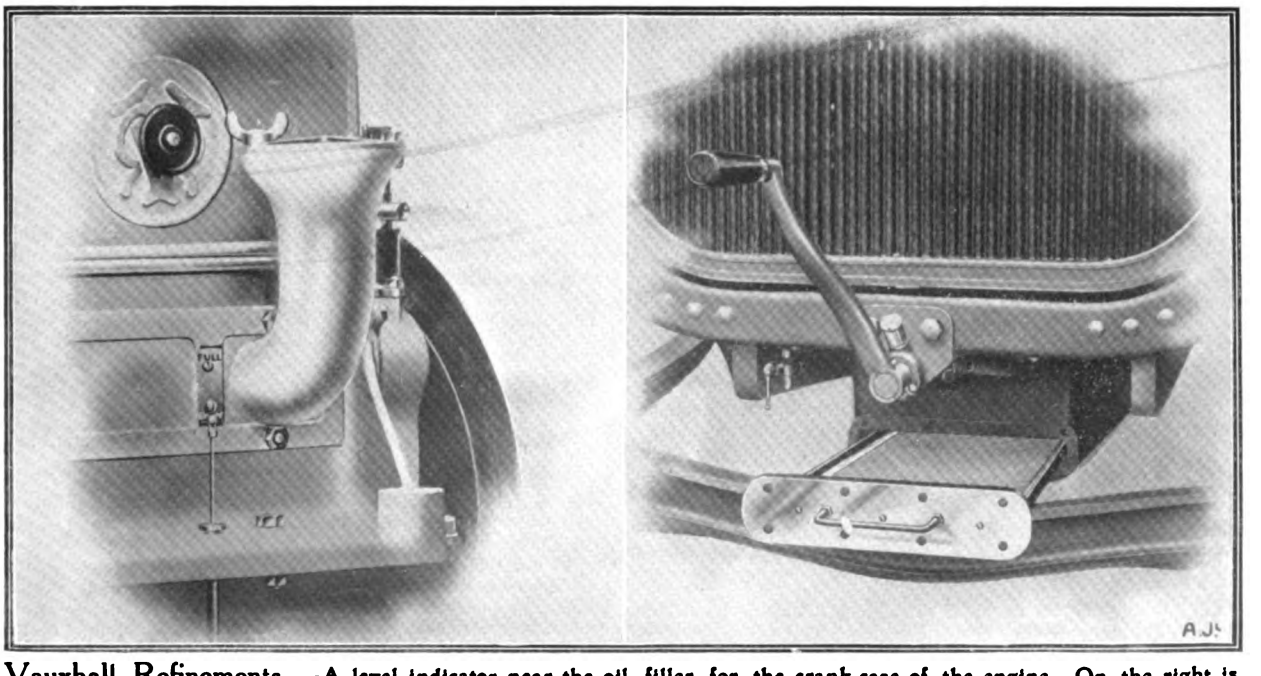
THE following practical advice to users of Klaxon horns is gleaned from the latest American catalogue of the Klaxon horn, and the idea of it might be taken to heart by all motorists.

The expression "Tiger" used in the third "DON'T" is meant to convey the sound that is emitted when the push button of the Klaxon is lightly tapped with the palm of the hand, thereby producing a short but sharp "growl."

1. Don't blow your KLAXON needlessly. It is a danger signal—not a toy nor a plaything. It should be used as a "warning"—not as a noise-maker.

2. In the country—don't wait to sound your KLAXON until you are immediately behind the wagon or pedestrian ahead. The KLAXON'S remarkable range-power enables you to give them ample time to turn out "leisurely."

3. In the city—don't blow a long blast where a "Tiger" is all that is necessary.



Vauxhall Refinements.—A level indicator near the oil filler for the crank-case of the engine. On the right is shown the method of removing the filter from the sump.

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NEW PROSPECTUS.

Clark Tyre Co., Ltd.

THE prospectus is issued this week of this Company, which has been formed for the purpose of acquiring the patents of Ernest Clark in connection with pneumatic tyre covers, the principle of which will be no doubt remembered by our readers from our having dealt with this clever invention in the AUTO. during the present year.

The capital of the Company is £75,000 of which £74,000 is in ordinary shares of £1 each and £1,000 in deferred shares of 1s. each. The present issue consists of 50,000 of the ordinary shares which carry a preferential dividend of 10 per cent., any remaining profits being divided equally between the ordinary shares and the deferred shares. The prospectus is a frank and clean statement of the affairs of the Company, and no portion of the issue has been underwritten. The directors are first class men, including besides the inventor, Lord Guernsey as Chairman, Mr. F. H. Buckmaster, Mr. Reginald Haddan, Mr. Cyril N. I. W. Irving, Mr. Ernest B. Ormerod, and Mr. Rudolf Selz, M.I.A.E., who is so well known in the automobile world..

When all is said and done there is really no reason why tyres should always be made the same way, and there is no doubt that the Clark tyre approaches the problem improvement from the right side, which is that of the motorist's repair bill. It may seem strange, as we said when introducing this tyre to our readers some while ago, to lay the first comment on the subject of its repair. The repair of tyres is, nevertheless, one of the most important aspects of their economy in motoring. An outer cover is too expensive to be ruined by an accident to a small part of its surface, and it is to facilitate the sectional repair of a damaged portion that the Clark tyre was, in the main, designed.

There is, of course, a more scientific side to the question than this, on which the Clark tyre seeks to justify its existence. Thus, the makers claim that the fabric, which is put on in strips that overlap one another, is so arranged as to equalise the stresses in the strands. At the time the Clark tyre was first introduced to public notice in July, the company was even then willing to guarantee 4,000 miles service in the case of the smallest tyre manufactured, and to replace free of charge any casing that gives way before its tread is worn off.

In the prospectus it is claimed that the cost of manufacture is smaller than by the usual process, so that the possibility of competing with other firms is thoroughly assured, one of the greatest points of advantage claimed by the Company being that the Clark tyre eliminates the tendency to bursts, which is such a serious cost in the running expenses of a car. In this connection, the most severe tests have been carried out under all conditions and weathers in Australia and in Europe, with the result that not a single burst has occurred.

Summarised, the chief claims for the Clark tyre are extra strength, greater resiliency, greater speed or less power required for the same speed, therefore, saving petrol, lower cost of manufacture, longer life of casing, possibility of repairing damaged tyre, assurance of successful and reliable re-treading, &c., &c. Such confidence have the Company in their tyre that, as already mentioned, they undertake to replace any cover free of charge if the casing gives way before the tread is worn off. Already contracts for the supply of these tyres have been arranged with different firms, including Harrods, Ltd. The estimated profits for the first twelve months is £15,000 without allowing any profits from tubes and sales of fittings, whilst an important provision is that the buildings and many of the machines to be erected by the Company, will allow for double the initial output, so that with an extra outlay of £1,500 the profit by increased work would be £30,000 per annum, ample margin being allowed in the capital for this extension.

Except as to £5,000 in cash, the vendors take all their remuneration in shares, and the Company acquires not only specific patents set forth in the prospectus, but all foreign and Colonial applications made in respect to the Clark inventions.

The secretary and offices of the Company are Mr. C. E. Cooke, 35, Walbrook, E.C., to whom applications for prospectuses should be made.

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Edinburgh to Have Motor 'Buses.

IN spite of the opposition of the Treasurer, the Edinburgh Town Council, by 33 votes to four, the other day decided to go forward with their scheme for acquiring and running ten motor 'buses. The Treasurer said they would lose £2,500 and he was very anxious to know whether the money was coming out of the rates or from the Tramway Account. The Borough Engineer, however, does not think such a contingency will arise.

COMPANY DOINGS.

Argylls, Ltd.

THE report of the directors to September 30th shows a balance of £5,742 2s. 9d. at the credit of profit and loss account. The directors recommend that the balance of the preliminary expenses, amounting to £3,768 18s. 10d. be written off, leaving £1,973 3s. 11d. to be carried forward. The sleeve-valve litigation resulted in a judgment in the Company's favour in the High Court of Justice, Chancery Division.

A. Darracq and Co. (1905), Ltd.

THE Directors' report and accounts to September 30th show a profit on trading during the year, after allowing for depreciation and making provision for bad and doubtful debts, of £14,753 3s. 11d., including interest and transfer fees, and a net profit, after deducting all general charges, of £732 11s. 8d.

The directors have transferred £50,000 from reserve, of which £20,000 is attributable to a heavy claim for English Income Tax under a recent decision of the Commissioners of Income Tax from which an appeal has been lodged.

After payment of £15,000 to the debenture service fund, the dividend on the preferred ordinary shares distributed on April 1st, 1912, and the interim dividend on the ordinary shares at the rate of 7½ per cent. per annum, for the half-year ending March 31st, 1912, paid on June 29th, 1912, there remained a balance to the credit of profit and loss account of £13,874 14s. 9d.

After providing for the dividend on the preferred ordinary shares, paid on October 1st, 1912, amounting to £13,125, there remains a balance of £749 14s. 9d. to be carried forward to next year's account.

Whilst firmly believing the check in the Company's prosperity to be only of a temporary character, the directors regret their inability to recommend the distribution of any further dividend on the ordinary shares for the past year.

The goodwill account (which originally stood at £416,123 7s. 2d.) has been further reduced during the year to £159,623 7s. 2d. by the purchase and redemption of £11,300 debenture bonds.

The unsatisfactory result of the year's trading is mainly due to the reduced production of the factory consequent upon the time devoted to the development of the new "valveless" type of motor which the Company decided in 1911 to adopt for the majority of the models.

The necessary experimental work in relation to this new form of motor has entailed serious interference with the manufacturing, resulting in a considerably diminished output and also delay in deliveries at the most critical period of the season, which brought about the cancellation of numerous orders from customers who were unable to wait. The Company may, however, expect to receive great benefit during the current year as the result of the labour and money expended over the "valveless" motor, which created a most favourable impression at the recent Olympia Show and enabled a large number of orders to be booked.

In June last Mr. A. Darracq retired from the position of managing director. Mr. W. B. Hopkins has been appointed resident director in Paris, and the management of the works has now been entrusted to Mr. Owen Clegg, formerly of Coventry. The directors consider that the Company is to be congratulated upon securing the services of Mr. Clegg, whose name is a guarantee that under his control the reputation of the Company's productions will be widely enhanced.

NEW COMPANIES REGISTERED.

Pfleumatic (1912), Ltd., 82, Victoria Street, S.W.—Capital £33,750, in 5s. shares. Manufacturers of and dealers in tyres manufactured under Patent No. 3314 of 1906, motor cars, carriages, cabs, &c. Under agreement with Pfleumatic (1910), Ltd., and its liquidator. First directors, A. L. Mason, G. E. Harris, W. A. Puttick, G. M. Burnside, T. W. Sweetman, P. Cobet, H. D. Ellis.

United Auto Car Manufacturing Co., Ltd., Walter House, Strand, W.C.—Capital £100,000 (99,900 £1 and 1,000 2s. Vendors'). First directors, E. Mors and W. S. Rutherford.

Private Companies.

Oakland Motor Car Co., Ltd.—Capital £5,000, in £1 shares.

Palace Pier Garage and Motor Works, Ltd., 20-20A, German Place, Brighton.—Capital £2,000, in £1 shares (500 "A" and 1,500 "B"). First directors, C. L. G. Barefoot and G. R. G. Barefoot.

Record Motor Co., Ltd., 8, Malt Street, Chester Road, Cornbrook, Manchester.—Capital £3,000, in £1 shares. First directors, E. Greenwood, P. Powell, and O. Gross.

Shepton Motor Co., Ltd.—Capital £2,000, in £1 shares. Acquiring the business of motor car proprietors and dealers, garage proprietors, &c., carried on by W. S. Tully and J. S. Williams at Shepton Mallet.

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PUBLICATIONS RECEIVED.

Sparking Plugs: their Design, Choice and Use.—By Alec. M. Lodge. Birmingham: Lodge Brothers and Co.

Catalogues.

De Dion-Bouton Motor Carriages, 1913. De Dion-Bouton (1907), Ltd., 10, Great Marlborough Street, W.

Siddeley-Deasy Cars. The Deasy Motor Car Manufacturing Co., Ltd., Coventry.

Motor Car Bodies. Charlesworth Bodies, Ltd., Much Park Street, Coventry.

The Skew Non-Skid. Oylers, Ltd., 35, New Cavendish Street, Great Portland Street, W.

Silent Transmission: the Daimler-Lanchester Worm Gear. The Daimler Co., Ltd., Coventry.

The Art of Entertaining. Webster and Girling, 44, Upper Baker Street, N.W.

BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1912.

In the trade returns for January, 1909, for the first time, *real* annual import and export trade totals were comparable, as, prior to 1908, no record was made of cars of travellers either coming into or leaving this country, the values and numbers being simply included in the export and import figures.

NOTE.—In our issue for January 13th, 1906, we published in one table the full figures of British Exports and Imports for 1902, 1903, 1904, and 1905. Prior to 1902, motor cars were not classified separately. In the issue for January 12th, 1907, the complete figures for 1906 were published; for 1907 in January 11th, 1908; for 1908 in January 16th, 1909; for 1909 in January 15th, 1910; for 1910 in January 14th, 1911; and for 1911 in January 13th, 1912.

NOVEMBER.	1911. November.		Eleven Months ended November.		1912. November.		Eleven Months ended November.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
IMPORTS.		£		£		£		£
Cars ...	474	135,750	5,926	1,553,208	405	130,951	7,026	1,726,360
Chassis ...	455	118,189	6,146	1,597,265	497	129,902	6,989	1,768,054
Parts ...	—	230,851	—	2,347,367	—	377,017	—	3,129,200
	929	484,790	12072	5,497,840	902	637,870	14015	6,623,614
Motor cycles	69	2,216	1,274	39,955	60	2,180	1,243	40,436
Parts ...	—	7,177	—	62,024	—	12,248	—	147,110
	998	494,183	13346	5,599,819	962	652,298	15258	6,811,160
EXPORTS.								
Cars ...	566	215,917	4,075	1,624,204	670	244,084	4,753	1,808,046
Chassis ...	77	28,760	653	264 413	111	43,188	1,070	394,901
Parts ...	—	105,300	—	999,438	—	104.716	—	1,097,457
	643	349,977	4,728	2,888 055	781	391,988	5,823	3,300,404
Motor cycles	1,174	46,113	6,481	244,406	1,475	60,581	11966	481,379
Parts ...	—	11,367	—	67,935	—	19,299	—	170,566
	1,817	407,457	11209	3,200,396	2,256	471,868	17789	3,952,349
FOREIGN AND COLONIAL RE-EXPORTATION.								
Cars ...	90	29.312	949	279,467	152	49,319	1,010	326,546
Chassis ...	81	25,088	409	127,736	66	16,899	588	162,768
Parts ...	—	14.859	—	194,379	—	15,885	—	212,744
	171	69,259	1,358	601,582	218	82,103	1,598	702,058
Motor cycles	7	351	91	3,555	18	744	134	5,726
Parts ...	—	575	—	6,445	—	766	—	8,242
	178	70,185	1,449	611,582	236	83,513	1,732	716,026

Note.—Total number of cars (including touring and other cars not for sale) during November, 1912—

Imports—517 (total for 1912, 10,410), value £207,331 (total for 1912, £3,941,792).

Exports—756 (total for 1912, 6,334), value £297,725 (total for 1912, £2,759,837).

Foreign and Colonial re-exports—226 (total for 1912, 2,287), value £100,290 (total for 1912, £1,179,080).

MIDLAND MEMS.

NINETEEN-THIRTEEN will apparently be a cycle car year. Several of the leading Midland firms have booked up until the end of August. The Humber Co., I hear, are making arrangements for turning out 100 Humberettes a week, whilst Perry's have sold their entire output for next year. The Perry cycle car was undoubtedly a popular favourite at the Show, and I should imagine that the young designer, Mr. C. T. Bayliss, is destined to become one of the forefront men in the new industry.

• • •

So Wilfrid Hill is to be Mr. Austen Chamberlain's prospective opponent in East Worcestershire. Well, it will surely be a hard fight, and costly, to boot; but Mr. Hill is an able business man, and invariably understands the game he is playing. I can only wish him—to quote the advertising phrase of his Chemico Car Polish—"a *brilliant* success."

• • •

Mr. Louis Coatalen and Mr. Cureton were paid a fitting tribute at the general meeting of the Sunbeam Motor Co. last week. The total profit of the year was £69,639, and the chairman, Mr. J. Marston, in making that happy and interesting announcement to his shareholders, very fittingly ascribed the company's success to the two men most responsible for it—Mr. Cureton, the general manager, and Mr. Coatalen, the designer.

• • •

Messrs. Goodyear and Sons, of Dudley, are still enlarging their premises, and adding fresh machinery to cope with their increased trade. Great developments and improvements have been made in this direction during the past few months.

The detachable rim business has developed to such an extent that an entirely new shop has been added, whilst their detachable wheels are now being supplied to such firms as the Daimler Co., Calthorpe, Sunbeam, Sheffield-Simplex, and others.

• • •

Alldays and Onions is another "grown-up" firm which is still growing. Mr. Fenwick tells me that the present premises are not large enough to comfortably cope with the increasing business. New buildings cannot be added to the existing pile, as these people are "built in" on all sides, so that they are seeking elsewhere for new land whereon to build.

Mr. Fenwick predicts a good innings for the little "Autorette" cycle car his firm is making, which, by the way, is a two-cylinder, water-cooled, selling at £138 10s.

• • •

Under the style of R. Broadhurst and Co., 130, Queen Victoria Road, Coventry, the well-known motor tool and accessories business, lately carried on by Mr. R. Broadhurst, Smithford Street, is now transferred as above.

PEJAY.

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ROUNDABOUT NOTES.

WITH regard to the legal decision in the action of Pugh *v.* Riley Cycle Co., we learn that the latter have lodged an appeal.

THE printed matter published by the Austin Motor Co. is always excellent, and the three latest editions of their catalogues to hand are no exception to the rule. One deals with the 10-h.p. and 15-h.p. models, giving a very complete and well illustrated description of the chassis, as well as full specifications and photographs of the carriage work suitable for these types. Another catalogue deals specially with the various Austin chassis, and is illustrated by a large number of line drawings as well as photographs, &c. The third catalogue deals with carriage work and, of course, fully describes the various models which are so popular. This catalogue is already in its tenth edition, that devoted to chassis in its ninth, while that dealing with the 10-h.p. and 15-h.p. models has already reached a second edition, thus indicating the popularity of Austin manufactures.

ARGYLL cars will, of course, be at the Edinburgh Motor Show in January, and they will also be in evidence at the Manchester Show the following month. At the Paris Salon, the Argyll Stand is one of the chief attractions, the polished chassis and the sectioned Argyll sleeve-valve engine always being a great "draw."

MR. E. SAVILL has recently joined Messrs. Holmwood and Holmwood, and is in charge of their West End office, where he is interested in placing the advantages of the Bell Insurance policy before motorists. As Mr. Savill is a motorist himself, and has a wide knowledge of all the conditions both from the point of view

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of the private owner and also of those in the trade, he should be able to build up a very fine connection. The firm, at any rate, have determined to back him by the immediate settlement of all ust claims.

A USEFUL little booklet descriptive of Frankonia domed one-piece mudguards, containing strong evidence of the merits of Frankonias, their value and economy, is to hand from Messrs. Barimar, Ltd., 10, Poland Street, Oxford Street, London, W. A copy will be gladly sent to any reader of the AUTO. on application to the Company.

"COAN'S CAST CLEAN CRANK-CASES"—and do any sort of aluminium work—and they do it so well that their business is increasing by leaps and bounds. In order to provide greater office accommodation for the extra staff, it has been necessary to pull down the front part of the premises at 219, Goswell Road, E.C., and rebuild them.

HIS MAJESTY THE EMPEROR OF BULGARIA has again honoured the Austrian-Daimler Motor Co. with an order for a car. Another purchase worthy of comment is one made by the Vienna police, who have ordered six Austro-Daimler chassis for their use.

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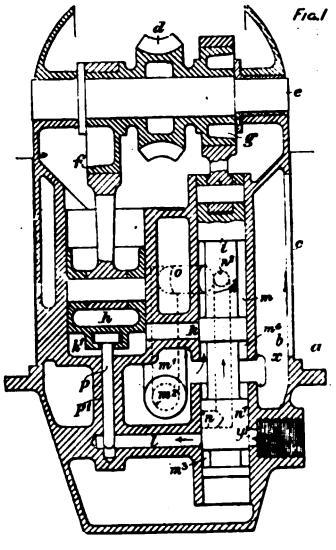
BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

20,428. September 7th, 1912. Date claimed under International Convention September 8th, 1911. A New or Improved Pump for Forced Lubrication. The Daimler-Motoren-Gessellschaft, of Fabrikstrasse, Unterturkheim, nr. Stuttgart, Germany.—The pump has a plunger and a distributing piston intended to effect a circuit lubrication while admitting fresh oil so that the oil

FIG. 1.



which has already passed round the circuit is again drawn into the pump and is at each stroke improved by the addition of a certain quantity of fresh or unused oil. The plunger of the pump is a differential piston; one part, that having the larger area, draws in the oil already in circulation, while the other part of smaller area draws the fresh or unused oil through another pipe. During the pressure stroke, both piston parts transmit the charges of oil already drawn in, to a conduit common to both in which the circulated oil is mixed with the fresh oil and is thence conducted to the parts to be lubricated. The distributing piston on the suction stroke simultaneously connects the differential cylinders with the corresponding suction pipes for the oil already in circulation, and the unused oil, while during the pressure stroke it simultaneously permits both charges of oil to be forced into the common oil delivery pipe. Fig. 1 is a sectional elevation. The container, *a*, for receiving the oil already in circulation is in the motor casing. The oil pump is enclosed in the container so that the oil automatically flows to the pump cylinder through the openings, *b*, covered by a strainer, *c*. The motion may be obtained from the valve-shaft or by means of a worm wheel, *d*, mounted on the pump-shaft, *e*. The pump-shaft has two eccentrics, *f* and *g*, the former of which operates the differential piston, *h*, while the latter drives the distributing piston, *i*, which piston, *i*, controls the admission of the oil which has already been in circulation coming from the container, *a*, and passing into the pump cylinder, h^1, below the piston, *h*, and this admission takes place through the port, *x*, annular space, m^4, and passage, *k*. The piston, *h*, has the plunger, *p*, which moves

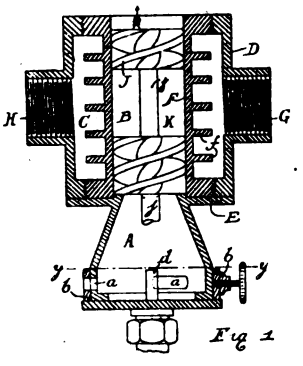
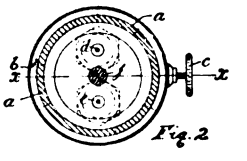


FIG. 2.



in a corresponding small cylinder, p^1. The fresh or unused oil is admitted to the small cylinder, entering the passage, *l*, by a port, y^1, in the pump casing and the distributing piston, *i*, likewise controls the admission. The distributing piston, *i*, has a lateral port, *n*, an axial passage, n^1, and a lateral port, n^2, at the upper end of the passage, n^1, by which the passage, *l*, leading to the small cylinder for the plunger, *p*, is intermittently put into communication with the annular space, *m*, around the distributing piston, *i*. The annular space, *m*, communicates by a passage, *o*, with the conduit or pipe, m^1, leading to the lateral passage, m^2, and thence to the parts to be lubricated. The piston, *i*, is provided at its lower end with a second annular recess, m^3, communicating between the port, *y*, and the passage, *l*. —November 6th, 1912.

24,106. October 31st, 1911. Improvements in Carburettors for Paraffin and like Heavy Oils. F. R. Davis, Station Avenue, Kew Gardens, Surrey.—The invention relates to the type of carburettor in which air is drawn or forced past a nozzle or nozzles supplying paraffin or like heavy oil, and the mixture thus formed passed through a chamber heated by the exhaust gases. Fig. 1 is a vertical section of the carburettor. Fig. 2 is a sectional plan in the plane of the line, *y y*, of Fig. 1. The carburettor is divided into three chambers, the nozzle chamber, A, the heating chamber, B, and the annular chamber, C, through which the exhaust gases pass. Air is admitted to the bottom of the carburettor through holes, *a*, and the passage may be varied by a ring, *b*, having holes to correspond with the holes, *a*. The ring may be clamped in adjusted position by a set screw, *c*. *d*, *e* are a pair of nozzles supplied from separate float chambers, the one with paraffin and the other with petrol. Immediately above the nozzles the chamber, A, converges, and at the point where it opens into the chamber, B, is less in diameter. D is an outer cylindrical part mounted on a flange, E, of the chamber, A. Screwed into D is a cylinder, F, which forms the wall of the chamber, B, and the inner wall of the chamber, C.) are annular ribs projecting a part of the way across the chamber, C. G represents the inlet for the exhaust to the chamber, C, and H the outlet. J is a double helix formed upon a stem, *j*, placed in the chamber, B, in such a manner that two helical passages for the air and fuel are formed through the chamber, B, one above each nozzle. The helix is discontinued for a portion of its length, as shown, thus forming within it an annular chamber, K, about midway in its length, so as to be in the hottest part of the chamber, B.—November 6th, 1912.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published December 5th, 1912.

26,570. CLAYTON AND CO. Motor wagons.

Published December 12th, 1912.

18,715. F. L. MIDDLETON. Reversing gear or I.C. engines.
18,802. F. L. MIDDLETON. Oil engines of Diesel type.
22,622. P. A. POPPE. Spur-transmission gearing.
25,420. WOLSELEY TOOL AND MOTOR CAR CO. AND A. A. REMINGTON. Supporting frames of cars from road wheels.
25,421. WOLSELEY TOOL AND MOTOR CAR CO., A. A. REMINGTON AND A. J. ROWLEDGE. Support of frames from front wheels.
25,700. R. H. MCHARDY. Self-starter.
25,761. T. A. E. NICHOLSON. Valves.
25,892. G. F. YOUNG. Signalling devices.
25,922. F. S. ELLETT. Clutches.
25,928. T. H. COLE. Variable-speed friction gear.
25,978. A. J. ROWLEDGE AND WOLSELEY TOOL AND MOTOR CAR CO. Driving-chains.
26,193. J. WHITTAKER. Valves and valve-gear.
26,619. N. A. CHRISTENSEN. Starting I.C. engines.
28,096. W. L. SPENCE. Carburettors.
28,175. T. P. BALDWIN. Carburettors.
28,691. J. D. ROOTS. Carburettor.

Applied for in 1912.

Published December 5th, 1912.

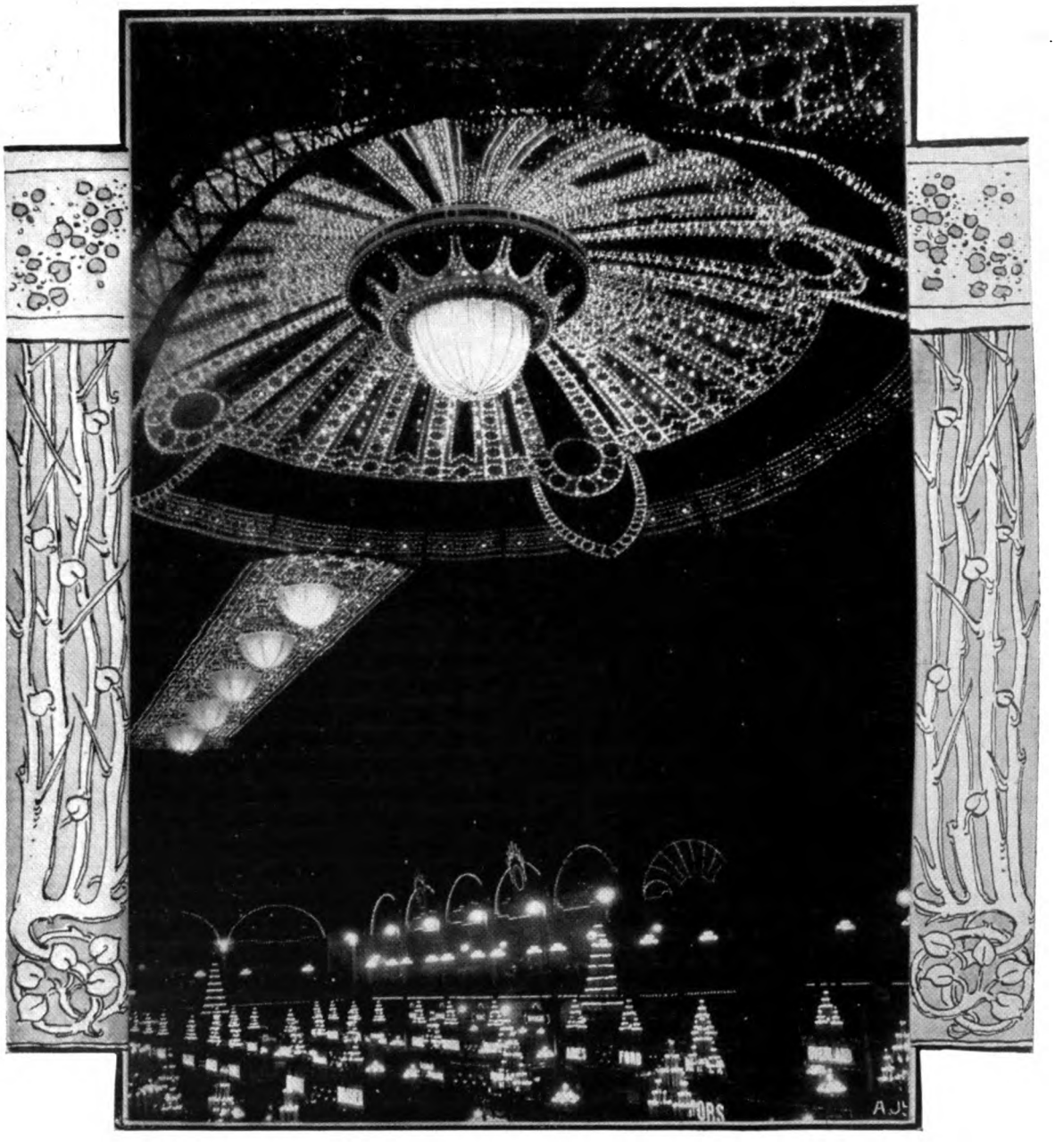
11,676. W. HEIDELMANN. Carburettors.
12,747. H. ZUEMER. Elastic tyres.
15,751. H. P. PLICHT. Tyres.
18,174. L. VALLEZ. Rotary Internal Combustion Motors.
19,617. CARROSSERIE VAN DEN PLAS. Mud-guards.
19,704. A. ROE. Wheels.

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The AUTO -MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 624. (No. 51, Vol. XVII.)] DECEMBER 21, 1912. [Weekly, Price 3d. Post Free, 3½d.



The remarkable scheme of electric lighting carried out at the Paris Motor Salon at the Grand Palais this month. Our photograph shows the illumination of the centre dome and one side of the *Grande Nef* roof, with the stand lighting below.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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44, ST. MARTIN'S LANE, LONDON, W.C.
Telegrams: "TRUDITUR," London.
Telephone: 1828 GERRARD.

Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.

Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.

All letters should be addressed to the Editor.

Subscriptions.

PENNY EDITION.	6 months.	1 year.	ART EDITION.	6 months.	1 year.
	s. d	s. d.		s. d.	s. d.
United Kingdom	3 6	7 0	United Kingdom	7 0	14 0
Abroad	6 6	13 0	Abroad	10 0	20 0

Remittances.

Cheques and Postal Orders should be made payable to the Proprietors of the AUTO., *and crossed "London County and Westminster Bank."*

Advertisements.

Advertisements for next Saturday's issue must reach this Office by first post on Monday of the same week.

Small corrections can be accepted up to 6 p.m. on Tuesday.

All communications must be addressed to the Manager.

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For the "Auto." Directory to Makers of Cars and Accessories see pages xvii to xxi.

Passing Events

Road Repairs in London.

Mr. Crawshay-Williams, the Liberal M.P. for Leicester, deserves the thanks of London for his pertinent inquiry of the President of the Local Government Board as to whether the latter possessed any power to insist that, when operations are in progress necessitating the taking up of the roadway in a London street, these operations should be prosecuted vigorously until effected in order that the inconvenience, danger, and disturbance caused might be as limited as possible. Mr. Burns, in his reply, said that he did not possess any such power. He agreed that it was very desirable that works of the kind should be carried through as expeditiously as possible, and he was glad to say that local authorities are becoming increasingly alive to the importance of this being done.

Mr. Burns might have added that it is not that the authorities are not alive to the importance of the question, but that there are certain reasons connected with the labour question why things cannot be hurried. No small part of the traffic congestion of the metropolis is to be laid to the account of works entailing the breaking up of the road surfaces. Take, for instance, such works as have been carried out lately, such as the relaying of a section of the carriageway in High Holborn, which meant the closing to traffic of one of the most important thoroughfares in London, and the diversion of that traffic to other routes which already carry an enormous volume of traffic of their own. If we were a businesslike community, such work would be pressed on by day and night, in order that the increased congestion should be spread over the shortest possible space of time. But, as we are apparently nothing of the kind, the work is conducted in the most leisurely fashion. The hours worked are few, and the aim of everybody concerned appears to be to get as little as possible done even in the limited time devoted to the work. We believe we are right in saying that, even if there could be found an energetic authority willing to press the work on to completion, the trade union rules under which the men work are Spartan in their severity in regulating the hours to be worked, and would not permit of undue haste. That, we believe, is where the shoe really pinches.

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Modern Traffic Dangers.

Some interesting evidence was given during the course of an inquest held at Southwark on a child who had been knocked down and killed in the Borough by a motor omnibus. According to the stories of eye-witnesses, the child, in running across the road, narrowly escaped being knocked down first by a bicycle, then by a motor cycle, eventually running in front of the vehicle which caused her death. Without the least desire to cause any deeper pain than must have been suffered by this poor child's relatives, we cannot help remarking that a heavy responsibility must rest on parents or guardians who allow children of tender years—the poor little mite was only five years of age—to run about uncontrolled in busy thoroughfares like Tooley Street.

Dr. F. J. Waldo, the Coroner, remarked that motor fatalities were increasing to such an alarming extent that he had asked Scotland Yard to send an expert to assist him and the jury. Sub-Divisional Inspector Bradley, the expert in question, said that recently there had been a great decrease in the weight of motor 'buses, and none were licensed which weighed more than six tons loaded. Motor 'buses were on the increase, and he did not think the number of tramcars was diminishing. Down to the present it had been beyond the power of anyone to invent anything practicable in the shape of a life-guard for motor 'buses, there being many difficulties which did not apply

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to tramcars. The more mobile vehicle had to encounter irregular road surfaces which the tramcar, running on rails, did not. On the question of accidents, he could not explain why the fatalities caused by motor 'buses were six times greater than those for which the tramcar was responsible, while it was equally difficult to say why tramcars injured more people than motor 'buses. The kerb was undoubtedly the danger zone of the road, and he thought many fatalities were caused through people stepping back from tramcars into motor 'buses.

The main thought which is suggested by Inspector Bradley's evidence is that an unduly large proportion of the accidents which occur are brought about by the carelessness of the pedestrian. It is a point we have often striven to make, and we are quite confident that every thinking person who has given any study to the question of street accidents, will agree that we are right.

Arising out of this same point it is interesting to remark that the L.G.O.C. has, during the past week, made a special appeal through the columns of the daily Press, to the general public to assist in reducing the number of accidents caused by motor traffic. From the Company's circular we extract the following, which seems to us to adequately explain very many of the deplorable happenings which are causing so much concern to the community:

"The pedestrian is not yet used to the confusing combination of slow and fast traffic. As an illustration, the slower vehicles keep into the kerb, and gauging their speed, a person often tries to cross the road in front of them, regardless of the speedier motor traffic coming up beyond them. Then, suddenly realising his mistake, he is apt to lose his head and at the last second dodge into a motor vehicle that is swerving to avoid him. There is a right and a wrong way of getting off and on an omnibus, and it is the wrong way of getting off that so frequently leads to disaster. A little more care and thought in the emergencies of the streets would save many unfortunate incidents."

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The Difficulty of the Pedestrian.

We agree, as we have before said, with the conclusions implied by the text of this quotation. It must, however, be recognised that the difficulty of the pedestrian traffic is one that is not to be lightly overcome by any such appeals as that made by the L.G.O.C. We are a people whom it is very hard to move out of established lines and customs. For centuries it has been a fundamental fact that the pedestrian has the first right to the road. He has been accustomed to use the roadway to the fullest limit of his rights, and has always had before him the feeling and knowledge that it was for the wheeled traffic to look after his safety before its own convenience, and these beliefs, like others, are very tenacious of life. Even the experience of this present generation has been along the lines of an unrestricted user of the roads by pedestrian traffic, because, it must be borne in mind, motor traffic as we know it now has been the product of the last five years. Thus the pedestrian has not yet become accustomed to the realisation that he cannot, in the interests of his own safety, wander about the carriage-way in the old haphazard way. That he still continues to do—and thus a certain proportion of accidents is bound to happen, which can only be laid to the account of his own carelessness. Then, another and larger proportion is to be accounted for in the fact that, no matter how careful that particular section of the pedestrian community may be in itself, people have not yet got used to the greater speed of the traffic, and become bewildered to their own undoing. Doubtless that will pass in time, but we cannot view with complacency the terrible toll that must be exacted of the careless and the "nervy" while the process of getting used to the conditions proceeds. We confess that we are at a loss to suggest a remedy. Speed limits, the statistics of street accidents tell us, are of no avail, because the major number of these accidents happen in congested areas where speeds are at the minimum. Besides, the community is demanding quick transit in its own interests, and the wholesale cutting down of speeds must end in our getting back to the days of the horsed omnibus and the four-wheeler. No doubt old-fashioned folks will argue that this would be a very good thing, but the obvious reply is that the people as a whole will not tolerate setting back the clock in the way that this would imply. For good or ill, the tendency is all towards greater rapidity of communication, and in making provision for the future this is a thing that has to be taken into account and the conditions adjusted accordingly.

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A Return to Sanity.

The last meeting of the London County Council was an interesting one from the point of view of the observer-student of the traffic problem, for the reason that the scheme for a tramway from the Marble Arch to Cricklewood received its quietus. The Council had before it three reports. One was from the Highways Committee, recommending that the scheme should be proceeded with both from the point of view of the public convenience and from that of the financial advantage it would be to the Council's tramways enterprise generally. On the other hand, the Parliamentary Committee reported against it, on the ground that there was very strong opposition offered to it by the local bodies through whose administrative areas the new line would pass; while the Finance Committee also reported adversely, expressing the opinion that in the present state of affairs it would be unwise to incur the heavy expenditure involved. Sir John Benn indulged in his usual outburst of special pleading, saying that if the Council decided against the Highways Committee he should regard it as the death knell of the tramways. He pointed out that in the report of the Royal Commission on London Traffic this particular tramway was indicated as one that was urgently needed. If Sir John were not so obsessed by his tramway fetish, he would have recollected that the Royal Commission sat seven years ago, when the electric was the last word of the time in above-ground traction. Since then we have moved forward considerably and the argument which would have applied then has no weight now. Sir John further went

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on to say that there was only one explanation of the attitude taken up by the opposition of the tramways—they wanted to make an end of the Council's enterprise and to let in their opponents. Which is just the sort of argument we should have expected from him! After an interesting debate, the report of the Highways Committee was negatived by a substantial majority, and we record with satisfaction that the scheme may now be said to be safely dead and buried.

The Policeman's Remedy.

Still *apropos* this matter of street accidents, among the journals which have been taking a lot of interest in traffic problems is our contemporary the *Standard*. In a recent issue there appeared an article on "popular fallacies," which is not only interesting but not a little humorous in parts. The *Standard* writer starts by saying that the man who really knows all about the London traffic problem is the policeman on point duty. It is he who does more to train the motor driver and repress recklessness than all the authorities at Scotland Yard and Spring Gardens, and it is he whose views and experience ought to form the basis of any regulations which are laid down. Apparently our contemporary's representative has been interviewing the point policeman rather extensively, for we find the views of that worthy individual set forth at some length. Some of the *dicta* to which the man in blue is committed are sound enough, but they are among the traffic truisms of London, and, therefore, do not enlighten us very much. On the other hand, some of them are quite new, but will not bear examination. For example, here is an entirely new suggestion :

"Nine accidents out of ten are caused by a swift vehicle overtaking a slow one and passing it on the off side, that is to say, nearer the middle of the road. The pedestrian steps hastily in front of the slow vehicle, and before he can reach safety is cut down by the overtaking omnibus or cab, or if he perceives this in time he attempts to retrace his steps and falls under the wheels of the slow vehicle, the driver of which is unjustly blamed for the accident.

"These facts destroy popular delusion number three which was expressed by the secretary of the Roads Improvement Association, who declared that he attached great importance to the slow-going vehicles keeping to the near side of the road, so as to allow a freer passage to all the speedier vehicles, thus increasing the traffic capacity of the road. It is precisely the other way about if we are considering the safety of the foot passenger. Indeed, in the opinion of the practical policeman it would be very much safer if the fast vehicles kept to the kerb and the slow ones travelled along the centre of the roadway."

The statement of how the majority of accidents are brought about is true enough, as, indeed, we ourselves have pointed out many times, and we have not been alone in this. So far, our policeman has demonstrated that he is a person of observation. Now, however, we come to his remedy—that of altering the whole traffic system by keeping the fast vehicles close into the kerb and the slower traffic stream in the centre of the road. Apparently our friend in blue has missed the point that most people want to cross the *whole* roadway, not only half of it. Supposing the scheme were altered as suggested, the pedestrian would first have to negotiate the fast vehicles close to the kerb. Having passed through safely, he would then have to find his way through the double line of slower vehicles, and having passed that he would find on the other side precisely the same set of conditions with which he has to contend now, viz., the fast vehicles overtaking the slower moving traffic. There is another aspect which appears to have been overlooked, and that is the problem of what to do with the vehicles which stand alongside the kerb for the purpose of taking up or setting down passengers or goods. It is obvious that if we are going to transfer our fast traffic to the near side of the road, that part of the highway must be kept clear for its passage. Otherwise we have congestion worse congested, and our last case is much more evil than the first. It is no use for anyone to make impracticable and fragmentary suggestions for dealing with a part of the trouble. It simply comes back to what we have said so many times in these columns, that there is but one way to deal with the traffic problem of London, and that is to take it and handle it as a single whole. It is of no avail to tinker with motor traffic and leave horsed traffic to take care of itself; no use to legislate for the horsed vehicle and leave the motor vehicle to wander as it lists; nor shall we ever arrive at a solution so long as we try to regulate vehicular traffic and leave the pedestrian with a roving commission. That is what it amounts to, and the sooner people realise it the sooner we shall get on the road to real traffic control.

Motor Polo in America.

According to the New York correspondent of the *Daily Telegraph*, motor-polo threatens to supersede all others in public favour in that city, and it is probable that before long a hundred teams will be smashing each others' machines and heads in a wholesale manner. Describing a game which took place in Madison Square Garden, the *Telegraph* correspondent says :—

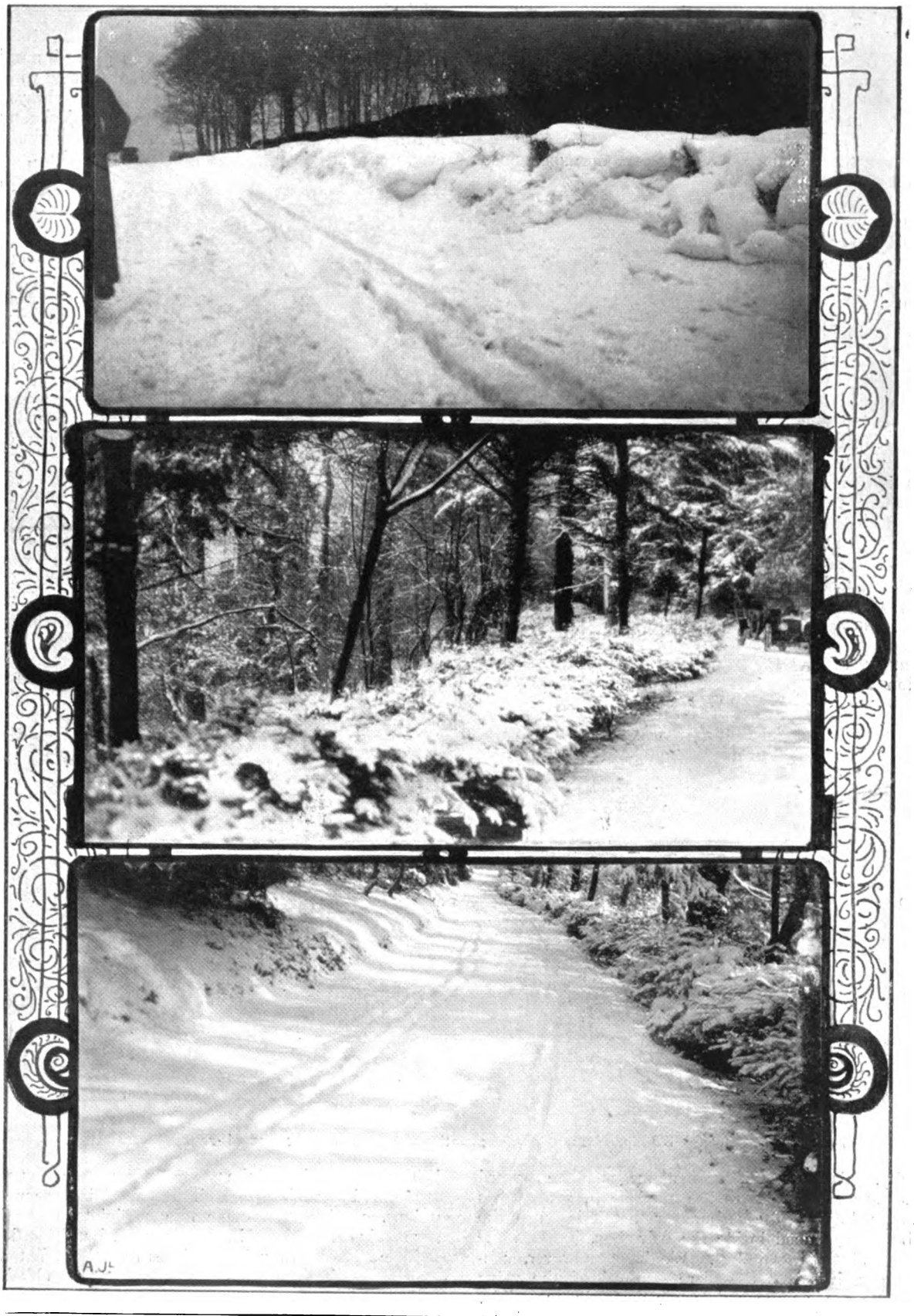
"Persons who have never seen the game will be able to form some idea of the dangers of motor-polo by picturing two high-powered cars rushing headlong at each other from both ends of a field, stopping dead, backing, shooting forward, climbing over each other, colliding, overturning, and so forth, while all the time a nimble, grim-faced athlete climbs over every part of the machine in his efforts to swing his mallet at the elusive ball.

"Several times in last night's game it was demonstrated amidst the howling excitement of the almost mad spectators that it is quite possible to turn a motor car quickly on two wheels after travelling thirty or forty yards at top speed. Collisions, upsets, and tumbling apparently have no terrors for the well-padded players of motor-polo. Many times last night cars overturned, their riders being thrown many yards through the air before landing on the ground, but they always resumed play with the utmost nonchalance. It had been hitherto believed that American football, with its terrible annual death-roll, was sufficiently dangerous to satisfy even the most bloodthirsty Yankee, but, as one spectator put it last night, 'football as compared with motor-polo is about as dangerous as playing marbles.'"

It sounds very impressive and we are quite willing to take all the excitement for granted. All we hope is that this lunatic game will not spread to these islands. To do our own people justice, we do not believe it will, for they have scarcely arrived at the stage of nervous exhaustion when it requires the stimulus of motor-polo to give a sensation of any kind.

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WITH THE CAMERA AND THE CAR.

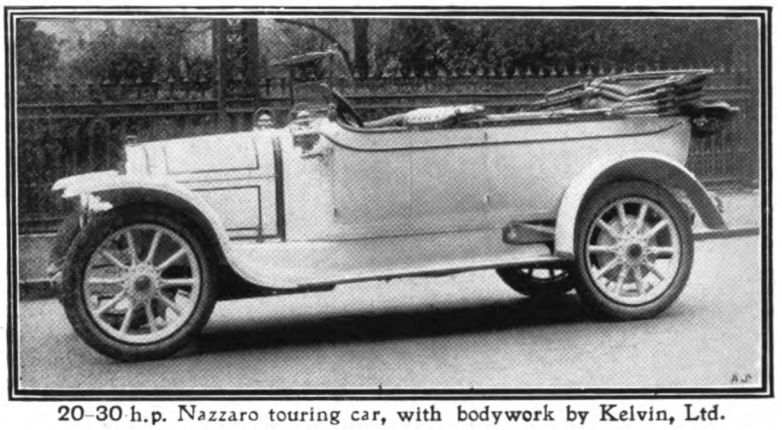


"Winter comes, to rule the varied year.'—*Thomson.*

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THE 20-30-H.P. NAZZARO CAR.

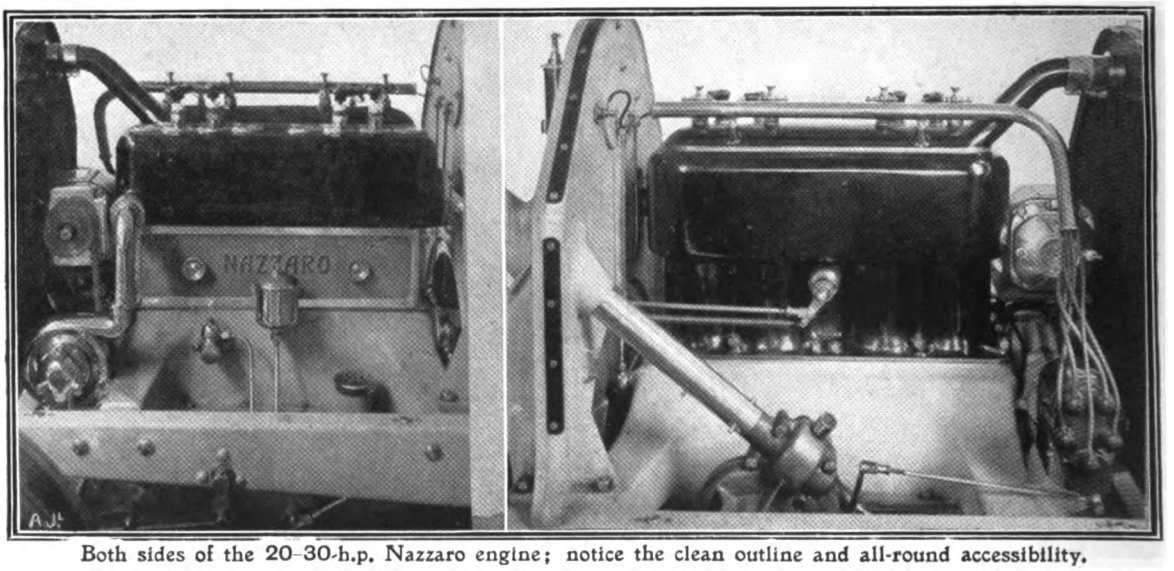
AT the recent Olympia Show the stand of the Motor Supply Co., Ltd., whose showrooms and offices are situated at the corner of Park Lane and Piccadilly, was a centre of attraction. And it must readily be admitted that the cause thereof, a well-finished 20–30-h.p. Nazzaro chassis, was well worthy of the attention it drew. We must say that it was not so much the dazzling show finish that was the abiding interest, as the design as a whole. It is one of those examples that fascinate the experienced observer who often returns to try and find one or the other detail that on previous occasions had escaped his notice. There really are very few chassis so clean in their design and which look more workmanlike than the 20–30-h.p. Nazzaro. At first sight it is plain to the eye that this chassis is well thought out and made to do hard work and plenty of it. The solidity of its construction inspires confidence, because everything on it is strong and solid, without, however, being clumsy or unduly heavy.



20–30 h.p. Nazzaro touring car, with bodywork by Kelvin, Ltd.

A glance at our illustrations will show clearly that on the Nazzaro car accessibility has in no way been sacrificed to obtain a pleasing appearance. Every part that may possibly want adjustment is placed in such a position that it can be got at without the slightest difficulty. The magneto, for instance, is at the forward end, set at a right angle to the crank-shaft, while it has been argued against the carburettor that it is out of the way by being placed inside the valve-box, between the second and third cylinders. We have, however, convinced ourselves that the mere removal of the valve cover-plate renders the carburettor perfectly accessible. Indeed, its position in the centre of the engine has a number of advantages that are not readily appreciated unless they are specially pointed out. Being protected by the aluminium cover-plate the carburettor is immune from accidental knocks; no water can get at it and into it, however much the bonnet may be splashed with the hose-pipe, or when fording a stream. It is always in a well-heated place, which eliminates water-jacketing or heating pipes and yet assures easy and perfect carburation even under adverse atmospheric conditions. Last, but by no means least, as the air is drawn from inside the valve-box, there is less likelihood of road dust reaching the inside of the cylinders than when the carburettor is in a more exposed position.

A large monobloc casting contains the four cylinders of the engine, which have a diameter of 100 mm., while the stroke of the pistons is 140 mm. Induction and exhaust manifolds are incorporated in the engine casting and the cylinders are kept well apart, thus ensuring ample water-space and room for long crank-bearings of which there are three. Forced water-circulation is employed for cooling purposes and the large centrifugal pump, which is driven by a worm-driven transverse shaft in front of the engine, is clearly visible in our illustration



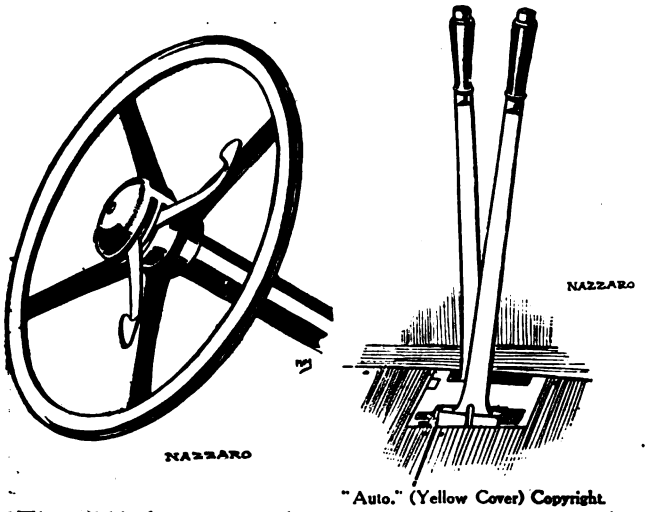
Both sides of the 20–30-h.p. Nazzaro engine; notice the clean outline and all-round accessibility.

With the exception of the two radiator connections, which are formed by rubber hose, all the water joints are metallic unions, consisting of cup and cone joints, and all are accessibly situated. No fan is used, but in order to induce a strong draught of air through the radiator, the fly-wheel spokes are vane-shaped, and act as fan blades.

As is to be expected, the engine is lubricated by a pressure-feed pump which is driven by the rear end of

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the cam-shaft, and forces the oil under considerable pressure to all engine bearings, including the gudgeon-pins. The latter are of unusually large diameter and hollow, so as to insure large bearing surface combined with light weight. The crank-shaft is of most liberal dimensions; at the main and big-end bearings its diameter is no less than 50 mm., but the crank-pins have been drilled out considerably to reduce the weight.



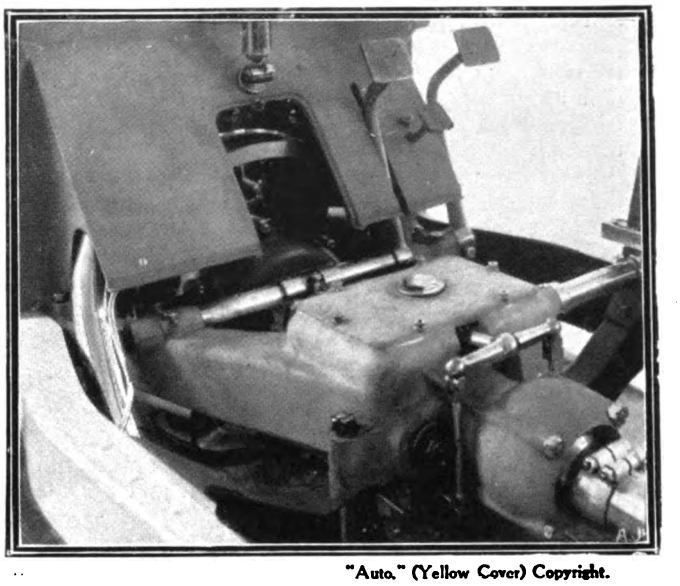
"Auto." (Yellow Cover) Copyright.

The all-black steering wheel and control levers and the change-speed quadrant level with the floor boards on the 20-30-h.p. Nazzaro.

In accordance with modern practice all the valves are on the near side of the engine and actuated by a single cam-shaft. A peculiarity of the cam-shaft is that it is driven by bevel gears from the transverse shaft, which also actuates the magneto and water pump. A feature of the valves is their large diameter, which is nearly two inches, or almost half the diameter of the piston. Short valve springs are fitted.

A waterproof Bosch magneto is responsible for the ignition, and is very accessibly placed. The firing point is variable.

Explosive mixture is supplied by a carburettor of the maker's own design. It is of the automatic multiple-jet type, and consists in the main of a large and a small jet. The latter merely acts as pilot, and is used only when the engine is running idle. Opening of the throttle brings into action the main jet which has, strictly speaking, five apertures of very small area, which operate one after the other as the throttle is opened. An automatic air-valve supplies the necessary amount of additional air, according to the demands of the engine.

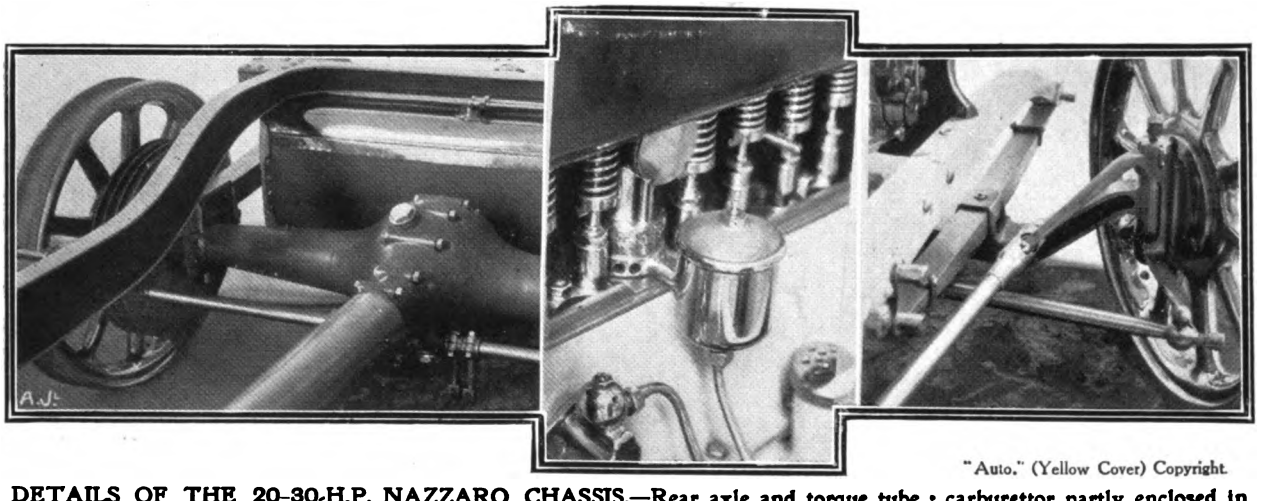


"Auto." (Yellow Cover) Copyright.

Central part of the 20-30-h.p. Nazzaro chassis, showing aluminium dashboard, gear-box, and main universal joint.

Petrol is supplied under pressure from a tank at the rear end of the frame. The suspension of this tank is very neat, and as it formed the subject of a sketch in one of the Show numbers of the AUTO., it may be sufficient if we refer our readers to this illustration. Pressure in the tank is supplied by a small air pump, which is driven by the cam-shaft and supplies cold air to the tank. It is shown in our near-side view of the engine to the left of the float chamber.

By means of a multiple-disc clutch contained in the boss of the large-diameter fly-wheel, the engine power is transmitted to the gear-box. The latter is a remarkable piece of aluminium casting, which is bolted at the rear to a pressed-steel cross-girder, while it has two large aluminium lugs cast integral with the box proper, which extend forward and sideways, and are bolted to the side-



"Auto." (Yellow Cover) Copyright.

DETAILS OF THE 20-30-H.P. NAZZARO CHASSIS.—Rear axle and torque tube; carburettor partly enclosed in the valve-box; steering connections.

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members of the frame immediately behind the rearmost engine-lugs, which they overlap to some extent. Not only a very rigid support of the gear-box is thereby obtained, but perfect alignment of engine and gear-shaft is thus maintained without necessitating a unit construction. Four speeds forward and a reverse are provided, and the control of the gears is by a lever working in a gate quadrant. The latter is so placed as to come inside the body panel, and has been kept quite flat so as to be on a level with the floor-boards. The gear-shafts are side by side, both are short, very stiff, and run on large-diameter ball bearings.

Through a well-encased universal joint—the pins of which are provided with ball bearings—and propeller-shaft the drive passes to the rear axle where the axle-shafts are driven by bevel and crown-wheel. Torque and driving strain are taken by the very substantial torque-tube which at its forward end is supported in a large spherical joint. The aluminium casing of this joint is cast integral with the gear-box and lined with phosphor bronze. It is lubricated from inside the box, and so leakage of grease from the spherical head is avoided.

A glance at our illustration of the rear-axle will convey a good idea of the enormous strength of the casing which carries all the weight. Extremely neat and accessible adjustment of the driving-bevel is provided at the forward end of the torque-tube, where an adjusting nut is placed so that by turning it one way or the other the bevel can be meshed more or less deeply with the crown-wheel until perfect silence of running is obtained. The adjusting nut is locked by means of a clamp.

Both brakes are contained in the rear-wheel drums which are very wide, of large diameter, and heavily ribbed for cooling. Both are compensated, and the balance gear, which is clearly shown in one of our illustrations behind the gear-box, is one of the neatest and best made that has come under our notice.

Suspension is by three-quarter elliptic springs behind and half elliptic in front, and some idea can be gained of the efficiency of the rear springs from the fact that the lower part of the former is 4 ft. 7 ins. long. All spring eyes are provided with bronze bushes and ample provision is made for lubricating the shackle-pins.

Steering is effected by worm gear; a complete wheel is fitted in the steering-box instead of the more usual sector, so that any wear can be taken up by revolving the worm-wheel so as to bring a new set of teeth into engagement with the worm. All steering-rods are perfectly straight throughout and special attention has been paid to the ball joints, which are of a very neat design and well lubricated. The stub axles are made in one piece with the steering arms, and the swivel-pins have large ball thrust bearings. By no means the least noteworthy feature of this remarkably fine car is the dashboard, which is a really fine piece of aluminium casting. It is provided with a detachable panel to give access to the clutch and the fly-wheel.

Sankey detachable steel wheels, shod with 880 by 120 mm. Dunlop tyres, are standard fittings. The price of the chassis, which is suitable for any type of carriage work, has been fixed at £495, which considering what is provided for the money, is decidedly moderate. Messrs. The Motor Supply Co., Ltd., are sole agents for London and the South of England.



PURCHASED BY QUEEN ALEXANDRA.—An original exhibit which attracted considerable attention, including that of M. Fallieres, the President of the French Republic, at the Paris Salon, being the miniature Cadillac car to a scale of two-fifths the size of an ordinary Cadillac. In our picture Miss Mona and Master Tommy Bennett are seated in this remarkable little vehicle.

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A SPRING HINGE TO PREVENT RATTLING OF CARRIAGE DOORS.

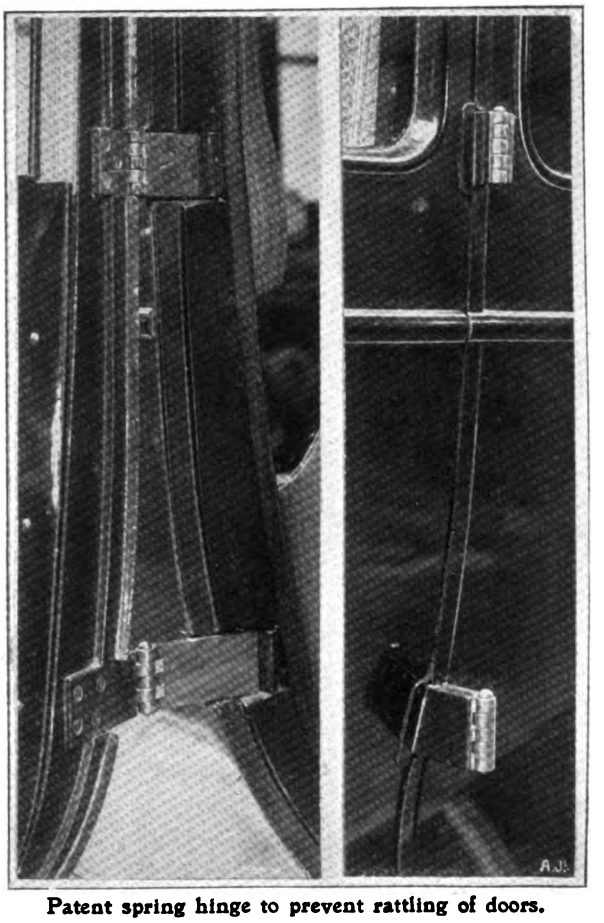
FEW things are so unpleasant on a high-grade motor carriage than a rattling door, but up to the present, no matter how well made, it is merely a question of time before the rattling ensues. Many efforts have been made to prevent it by trying to hold door and body firmly together by rubber buffers, and other more or less ingenious devices; another way, described below, is to incorporate an arrangement in the hinge of the door itself.

The hinge is illustrated in the accompanying photographs, and the principle of it is that one half is screwed to the door as usual, whilst the other half, which, in the ordinary way, would be fixed to the *front* of the door-post, through the medium of a flat spring, is attached to its *inner* side. The spring is so arranged that it exerts a forward pressure, thus tending to hold the door firmly against the front pillar, and in this way takes all the jar off the hinges and the lock. In order that the door is securely held when shut, a small block of elastic material is fitted to the front pillar, and a similar block, set at an angle, is let into the tread plate underneath the door. When the door is tightly closed, the blocks are compressed, and together with the hinge, successfully prevent all vibration and consequent jar and rattle from reaching the door.

In the illustration on the left, which shows the door open, the front half of the hinge will be noticed attached to the door in the usual way, while the other half has the steel-spring plate riveted to the circular portion of the spring, just visible on the right of it. The other photograph shows the hinge with the door closed, and clearly illustrates a flange on the hinge-plate. This flange is fitted to cover the small space allowed for clearance between the door and pillar which has to be provided to allow the necessary movement of the spring.

It will be seen that the addition is very simple indeed, and can be applied to any kind of bodywork. It can be fitted without alteration in the body, and it is claimed that this fitting is well worth the small outlay.

We are indebted to Messrs. S. F. Edge, Ltd., for the photographs and details of this neat device, which has been tested for a number of months on Napier cars where, we are told, it answered its purpose admirably.



Patent spring hinge to prevent rattling of doors.

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ACCESSORIES OF THE WEEK.

DOVER, LTD., of Northampton, have two special novelties this year in the shape of a new Exonite covered aluminium steering wheel, and Dover non-flam Exonite. The former, while suitable for cars, is especially designed for use on aeroplanes, where, naturally, saving of weight is of much greater importance. It has an aluminium rim, and is covered all over with black Exonite, while the total weight works out at exactly 1 lb. 14 ozs. While on the subject of the weight of steering wheels, we wonder whether the average driver has any idea on this point. Probably very few drivers know that their wheels weigh from 5 to 8 lbs.

THE non-flam Exonite is intended as a substitute for glass in wind-screens. It is supplied in sheets and also in a number of standard sizes in ovals and panels. The latter are supplied stretched tightly between light steel rims, and are all ready for fitting in screens or side or back windows. Here, again, there is a large opening in connection with aviation, as its three outstanding qualities, lightness in weight, inability to cut, and non-inflammability, are about as useful attributes for the windows of enclosed aeroplanes as could be desired.

BLUEMEL'S, of 37, Great Eastern Street, E.C., who have long been noted for their celluloid goods, such as mudguards, pump cylinders, and the like, are now making a special feature of celluloid covered steering wheels. The noticeable point in the appearance of these wheels is that the hub or centre of the wheel is left uncovered by celluloid and polished. The appearance is certainly enhanced by this method, and if the centre part can be *kept* brightly polished without rubbing the lustre off the celluloid covering on the surrounding arms, there should be a great demand for wheels so made.

THE O.S. Recorder, which is being put on the market by the O.S. Speedometer Co., 186–8, Shaftesbury Avenue, W.C., will, we believe, soon be sold in this country by a separate and powerful syndicate, and is a device for checking the journeys of a car, the time taken in running and also in stops. The instrument is well-designed and solidly built, and while no extravagant

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claims are made for it, it seems well up to its work in every respect. The record is obtained on a roll of greased paper, of about an inch and a quarter in width, the needle marking the strip by scratching it with a series of fine dots. The carrier for the roll is easily taken out, as shown in the photograph, without undoing any screws or nuts, and after refilling with a new roll, can be as easily returned.



Some Accessories of the Week.

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SPENCER MOULTON Tyres and Detachable Rims have been before the motoring public so long that little more than a brief notice is needed here. The former are made in plain, grooved, square-ribbed, and steel-studded patterns. The principal feature of the Spencer Moulton rim is that it—the rim—is divided, so that by detaching the outer half of the rim, which in itself is an easy job, the tyre can be removed, or the whole rim with the tyre in position can be withdrawn from the wheel and a spare rim and tyre mounted in its place.

WE made mention last week of the varied assortment of window-straps that were displayed by Ernest Turner, of Manchester, at the recent Olympia Show. In the top right-hand corner of our page of illustrations this week will be seen a selection of these articles which can be had in a large selection of colours and materials.

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Dinner of the Bradford A.C.

THE annual dinner of the Bradford A.C. last week drew together a large number of motorists of the neighbourhood, and among those who supported the Chairman, Mr. W. W. Rycroft, President of the Club, was the Lord Mayor, the Chief Constable, &c. In proposing the toast of "The R.A.C.," Mr. J. J. Oddy said he thought there should be an attempt to make the slower traffic realise their position on the road, as when there was a succession of coal carts wandering from one side of the road to the other there was considerable danger both to motorists and everybody else.

Mr. A. Armitage responded, and said the R.A.C. was flourishing, and was doing its best to raise motoring to a high standard, so that every motorist should realise that he had a right to the road which should not be abused, and so set an example to others.

Mr. Orde submitted the toast of "The Bradford Automobile Club," which organisation, he said, was known as the fighting club. It had fought many battles, and won most of them. Referring to the clauses as to motor vehicles in the Bradford Parliamentary Bill, he said there were quite sufficient motor laws now, and if local conditions were imposed they would not be good for the industry as a whole.

In responding, Mr. Kent said he had been assured that the regulations referred to commercial and not to pleasure motors, but it was for the club to see that a definition of what was meant should be put in the Bill. They had communicated with the Town Clerk, but so far had not had any definition of the iniquitous clause from him. However, the Committee had their eyes open, and anything that was inimical to their interests would be opposed. In conclusion, he said that their membership instead of being 400 should be 800 at least.

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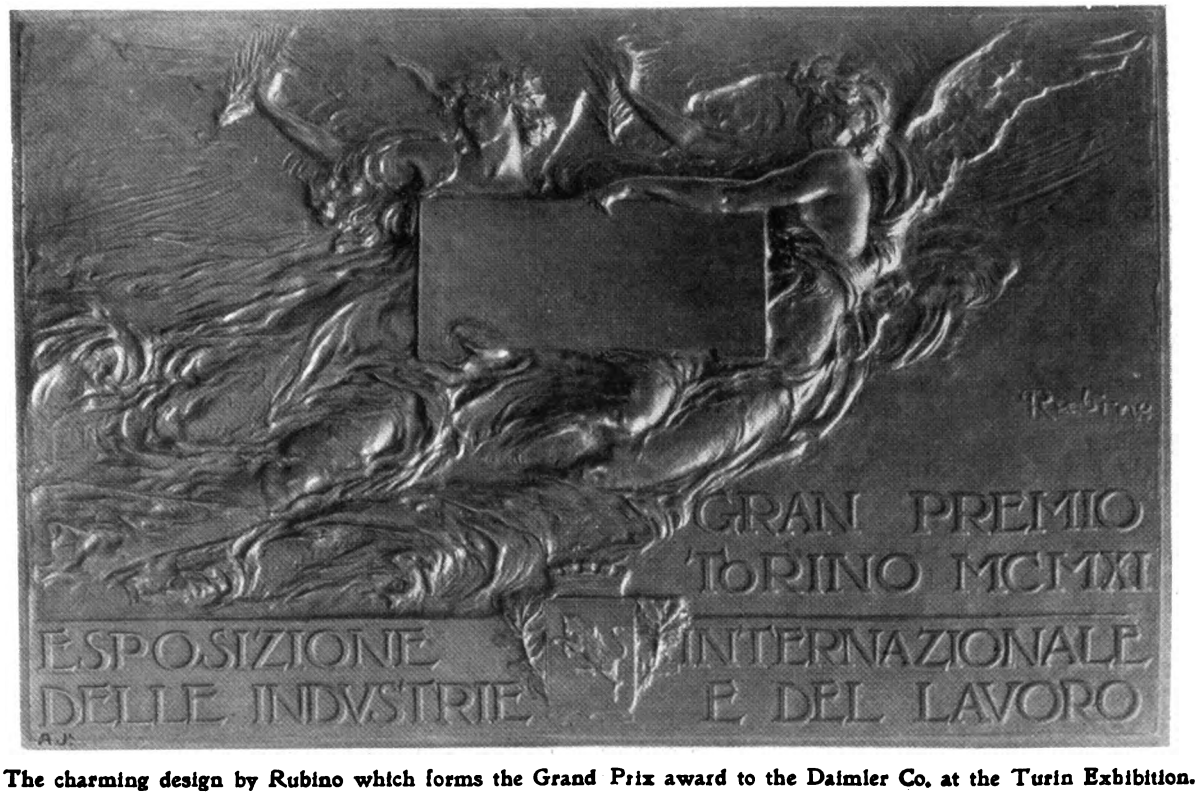
Automobile Golfing Society.

THE RIGHT HON. THE EARL DE LA WARR, having generously presented prizes for competition, the Winter Meeting will take place on the Cooden Beach Links, Bexhill-on-Sea, placed at the Club's disposal by his Lordship and the Committee, on Saturday, January 4th. The programme will be:—

In the morning: An 18-hole medal round for a silver trophy.
Runner-up: A box of golf balls.
In the afternoon: A 9-hole bogey competition for a silver trophy.
Runner-up: A box of golf balls.

Headquarters will be at the Sackville Hotel, Bexhill, where rooms can be booked. An informal dinner will be held in the evening, at which Lord de la Warr will preside and distribute the prizes.

Entries close at 6 p.m., December 28th, and those members wishing to enter must forward their names to Mr. Hamilton Hobson, 16, Pall Mall, S.W., together with the lowest handicap at which they play at any club,



The charming design by Rubino which forms the Grand Prix award to the Daimler Co. at the Turin Exhibition.

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For the Roving Motorist

· CHURCHES OF ENGLAND ·



WHATEVER the ecclesiastic may have to say as to the effect of the motor car in the depopulation of country congregations, there isn't a shadow of doubt that the motorist is in a far better position than most people to take a human interest in the church and its associations, and to acquire that acquaintance with the external shell which might so easily grow into a deeper feeling for the work that goes on within, when the Church herself shall have at last weathered the storm of a new renaissance.

After all, there is nothing that can be quite so interesting as a church, if you only approach it in the right way. Viewed as a mere edifice, it is not always even an attractive feature of the landscape, and as an object of emotional reverence there is evidence to suppose that it now appeals only to the few. But, the foundations of the true Church atmosphere take root in a sentiment that is as undying as time itself, for the instinct of religion in man has been the most important factor in the history of all races since this divine creation first walked upright on its feet and began to develop within its brain the abiding spark of mind.

If you would study the history of a people you must study their religion, and for their religion you must set yourself to understand what remains of their churches. In England it has been the same as elsewhere. Kings may come and kings may go, but the Church remains for ever, and he who habitually passes by these grey stone monuments of the greatest sentiment in man, without a thought of what they mean to him and to the race, neglects to do his mind the justice of a noble thought.

These are busy days, however, and most of us have small time to study Church history through the ordinary channels. There is, nevertheless no reason why even the busiest among us should not acquire that groundwork of elementary knowledge that is the foundation of interest in these matters. From a little book that the Homeland Association have published entitled "Our Homeland Churches" and now re-issued in a revised and improved edition you can obtain more in the space of an hour's reading than you are likely to remember, and even if you were content to read the book and stop at that you would be well repaid for your interest.

To the motorist, such an excellent little volume as this has a real and living interest. The simple rudiments of church architecture that it so clearly explains he can go and study for himself by a tour with the car. The examples that this little book gives of this or that peculiarity become objects of live interest which the motorist instinctively feels he should visit when he is next *en route*. Through the courtesy of the publishers we are able to reproduce two or three of the excellent photographs with which the book is copiously illustrated, but we have in addition prepared one of our special key maps so that the whereabouts of some our most interesting homeland churches may be seen at a glance.

The growth of Christianity in England is of such a complex kind that it is difficult, if not impossible, to sum up items of information in an explicit and precise form. From the schoolboy's point of view, so far as the recollections of after life serve to remind him of facts, very early English history was mostly centred round the incidents of Arthur and his round table, Alfred and his cakes and the coming of the Conqueror in 1066. In somewhat the same way does a superficial recollection of ecclesiastical progress single out the coming of St. Augustine as a matter of uncommon import, and so indeed it was, although according to "Our Homeland Churches" and the Rev. P. H. Ditchfield, who is therein quoted, "much learned controversy, and many curious arguments have been devoted to the extent to which we in England are indebted respectively to the Celtic missionaries from the north, the British church in its western retreats and the new mission from Rome under St. Augustine. Each, of course, contributed to the evangelisation of Britain. But that either Celt or Britain could have converted the English without the initiation of St. Augustine is manifestly improbable. For the British church could make nothing of the heathen invaders before whom it fled. And the Celts, courageous pioneers though they were, lacked the essential gifts for consolidating, building up, and organising those whom they converted. When men began to realise their unity and to look for a centre of life and authority, it was to Canterbury and not to Iona that they turned. It is unwise and unhistorical to exhault the great work of Columba by belittling the great work of Augustine."

In the body of the book there is a fund of really interesting information about church types and church architecture which is of the very kind that tourists want to know in order that they may take

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an intelligent interest in what they see during the few brief moments that they are ordinarily devoted to any one sight. Points about church plans and how the aisle and the nave and other characteristic features have resulted from the necessity of increasing the accommodation to meet the requirements of the larger congregations that resulted from the widening influence of the Church, are simply explained as also are some of the more apparent points of difference between the features appertaining to Norman, Gothic, Perpendicular, Renaissance and other periods of ecclesiastical architecture. This latter, by the way, is a subject of great complexity to the student, but for the man who merely desires to be interested and wishes to feel that he appreciates a little of the much that a visit to a church can convey, we have seen nothing equal to this little book for lucidity and compactness; we can thoroughly recommend it to our readers for inclusion in their touring library.

Details of some of the more interesting points to be noted among "Our Homeland Churches."

Arundel, Sussex.—A characteristic piece of timber construction in the north porch. Also a pre-Reformation altar-slab.

Avebury, Wilts.—Two original Saxon round-headed windows.

Barfreston, Kent.—A complete Norman building, with fine examples of a "Wheel window," doorways, &c.

Barnack, Northants.—A good example of Saxon architecture. The doorway of the tower is placed in an unusual position—on the south.

Beaminster, Dorset.—Has one of the finest towers in England.

Beaulieu, Hants.—An early specimen of a stone pulpit.

Birmingham, St. Martin's.—An open air pulpit.

Bishop Auckland, Escomb Durham.—An example of early Saxon work.

Bishopstone, Sussex.—Examples of Saxon and Norman architecture.

Blackmore, Essex.—A fine specimen of a timber tower.

Bradford-on-Avon, Wilts, St. Lawrence.—The only Saxon church in England that has not suffered from extensive alterations.

Bradwell-on-Sea, Essex.—The remains of an early Saxon church, now used as a barn.

Bridekirk, Cumberland.—A pre-Conquest font bearing an inscription:

Brixworth, Northants.—Built about A.D. 680 of Roman materials. Contains one of the earliest examples of Saxon arches.

Broadwindsor, Dorset.—Contains a Jacobean pulpit used by Thomas Fuller.

Brookland, Kent.—Has a very fine leaden font.

Canterbury, Cathedral.—Good examples of Norman spires on the eastern transepts. The font is placed in a small circular building called the Bell Jesus. Has probably the largest Norman crypt and fine examples of early windows.

Canterbury, St. Martin's.—Said to be the oldest existing church in England.

Carlisle, Cathedral.—The east window is one of the best examples of the Curvelinear style.

Cattistock, Dorset.—Has a famous carillion of bells (35) erected 1889. M. Joseph Denyn, the renowned carilloneur, periodically visits this church to give recitals, the chimes being, perhaps, the finest in England.

Corhampton, Hants.—The north door arch, chancel arch, font, and a stone seat in the chancel are excellent examples of Saxon work.

Croscombe, Somerset.—Has many examples of Jacobean work, including a fine pulpit.

Deerhurst, Glos.—The central position of the altar. Has a pre-Conquest font bearing an inscription.

Dunstable, Beds. The west front: Examples of late Norman and early English work side by side.

Durham Cathedral.—Fine examples of a "galille" or porch and a stone altar screen.

Earl's Barton, Northants.—Has a characteristic Saxon tower.

East Bergholt, Suffolk, St. Mary.—The Bell tower was never finished and the bells hang exposed in the wooden belfry cage.

East Sutton, Kent.—A very fine example of a decorated on curvilinear tracery and window.

Evesham, Worcester.—A fine detached bell tower, built by Abbot Lichfield; took six years to build.

Exeter Cathedral.—The nave forms one of the best examples of the decorated building, the window tracery having great variety.

Fairford, Glos.—One of the perpendicular churches; contains several imported foreign windows.

Fountains Abbey, Yorks.—The crypt is a fine example of ribbed vaulting of the early English period.

Garway, Hereford.—Has a detached bell tower, joined to the nave only by a narrow passage.

Gloucester Cathedral.—Has an interesting Norman crypt and a fine 14th century window.

Grantham, Lincs.—The spire is a fine example of the 14th century or decorated period.

Great Yarmouth, Norfolk, St. Nicholas.—Claimed to be the largest parish church, having 25,023 sq. ft.

Greensted, Essex.—The Saxon portion of this church is composed of large trees split asunder and set upright close to each other with the round side outwards. The body of St. Edmund rested here on its translation from London to Bury in 1013.

Hereford Cathedral.—Possesses a splendid old chained library.

Hexham, Northumberland.—Has some of the few examples of wood work of the Flamboyant style (the intermediate form between the French Decorated of the 14th century and the Renaissance style of the 16th century).

Hornsea, Yorks.—Has a good example of a Saxon crypt.

Hull, Yorks.—One of the largest of our parish churches.

Ipswich (St. Peter), Suffolk.—Has a Norman font of the square pattern.

Iron Acton, Glos.—Has a good example of a mediæval open-air pulpit.

Kenton, Devon.—Has a beautiful screen and rood-loft. The pulpit has retained its original paintings.

Lastingham, Yorks.—Has a large crypt extending under the whole length of the church.

Lincoln, St. Mary-le-Wigford; St. Peter-le-Gowt.—Good examples of Saxon towers.

Little Maplesteed, Essex.—One of the round churches, founded by the Hospitallers, 1186. Only the font is of that date, the building being rebuilt about 1300.

Marton Cheshire.—This church is built wholly of wood.

Nether Peover, Cheshire.—Built partially of timber.

Northampton, Holy Sepulchre.—One of the round churches, contains some fine Norman piers.

Ockham, Surrey.—Has a peculiar window consisting of seven graded lancets.

Old Shoreham, Sussex.—Has a massive beam carved with Norman moulding, said to have supported a rood.

Ottery St. Mary, Devon.—Has some very fine carved bench ends and also 21 consecration marks (indicated by crosses); 13 of these are outside.

Oxford, Magdalen College.—Has a typical perpendicular doorway and an open air pulpit.

Oxford, Merton College.—The chapel has a beautiful geometric window. Also a quaint gargoyle.

Oxford, New College.—Contains Reynolds' famous window, painted by Jarvis.

Peterborough Cathedral.—The west front is an excellent example of Gothic architecture. Also some of its Norman windows have the plain openings filled up with the perpendicular style of tracery.

Reculver, Kent.—The remains of a church built about 670. It is thought to be of Roman origin.

Ripon Cathedral.—Has a very fine Saxon crypt.

Ripon St. Mary.—A ruined church, contains a pre-Reformation altar-slab.

Rochester Cathedral.—The west doorway and tympanium are one of our best examples of the Norman style. The crypt is of much older date than any portion of the superstructure.

Romiley, Cheshire.—Is a half-timbered building.

Rushton Spencer, Staffs.—A small half-timbered church said to date back to the time of Henry III.

Rye, Sussex.—Has a very good example of early English pier and also of the perpendicular type of buttress.

St. Alban's Abbey. Has a portable altar made of jasper, circular in shape.

St. Alban's Cathedral.—Has a fine stone screen.

Salisbury Cathedral.—Contains some excellent examples of early English work. It has some very beautiful 14th century windows. The spire is the tallest in England, being 404 ft. high.

Sandwich, Kent.—Has a somewhat rare form of aumbry (a small cupboard or recess used for storing the church plate). Also a fine square tower (Norman).

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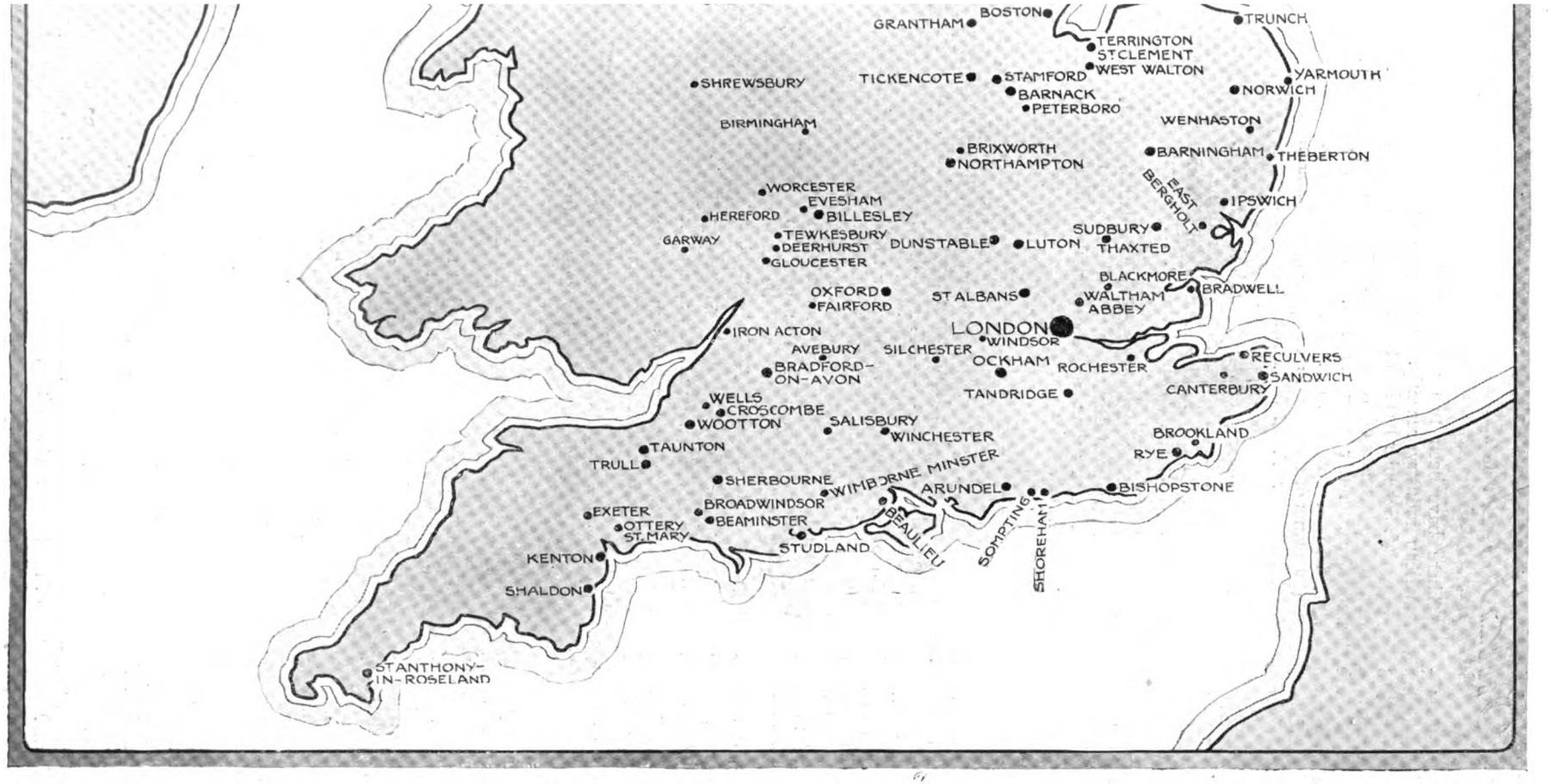
THE "AUTO" KEY-MAP OF CHURCHES

ST CLEMENT SANDWICH

THE LADY CHAPEL ST ALBANS

OCKHAM CH.

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"OUR HOMELAND CHURCHES."—A key-map prepared with the intention of showing, at a glance, where some of our most interesting churches are to be seen. Above are photographs of three within easy reach of London.

Sherborne, Dorset.—Example of perpendicular pier. Also a grotesque carving on the under side of the hinged stall seat ("Misericord").

Shrewsbury, Salop.—The pulpit of the Abbey stands in the station yard.

Silchester, Hants.—The foundation-masonry of this church is Roman.

Sompting, Sussex.—Has a rare example of a Saxon spire, also contains some fine Saxon work.

Studland, Dorset.—Is a good example of an early Norman village church.

Tandridge, Surrey.—Has an early English shingled broach spire.

Temple Balsall, Warwick.—One of the Templar churches, afterwards handed over to the Hospitallers.

Temple Brewer, Lincs.—Remains of one of the round churches.

Tewkesbury, Glos.—Has some fine 14th century windows, also contains some of the earliest examples of fan vaulting.

Thaxted, Essex.—Has a curious font cover which embraces the font itself.

Theberton, Suffolk.—Has several grotesque and unusually large gargoyles.

Waltham Abbey, Essex.—Has a very fine interior, with notable examples of a Norman pier and triforium arcade.

Warmsworth, Yorks.—The bell tower stands about half a mile away from the church.

Wells Cathedral, Somerset.—The choir is one of the earliest examples of Gothic architecture. Has a fine early English porch.

Wenhaston, Suffolk.—Has a painted rood on a tympanum. Very few of these are in existence.

West Walton, Norfolk.—Has a fine detached bell-tower supported of four great arches which serve as a kind of lych-gate and entrance to the church yard.

Wimborne Minster, Dorset.—Has an interesting crypt which is lighted by four windows.

Windsor, Berks.—Has a fine painted window (West's) by Jarvis and Forrest.

Winchester Cathedral.—Has a fine stone screen, Norman font and good examples of stalls (choir seats).

Worcester Cathedral.—Contains fine examples of Gothic architecture. Has a fine lantern tower.

York Minster.—Has some fine windows—notably the "Five Sisters of York" also a fine lantern tower.

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Notes from New York

ALTHOUGH the people of Milwaukee have expressed a desire to have the running of the 1913 Grand Prize and Vanderbilt Races, there are others who are after them. The Savannah A.C. appear to want them back again if there is any prospect of getting full entry lists, while a Motor Dealers' Contest Association has been formed in New York, mainly with the idea of securing the Vanderbilt Cup Race and holding it again on a course on Long Island.

• • •

The Motor Truck Club of New York has decided to pursue a much more active policy than hitherto with a view to bringing the claims of the motor vehicle before potential users, and with this end in view has appointed Ellis S. Howland as secretary and general manager, and taken suitable offices at 1845, Broadway. It is proposed to hold weekly meetings, at which leading men of the industry will speak, and to establish a bureau to secure specific information about costs, and generally to collect and distribute data concerning commercial vehicles. A registry of drivers of such vehicles is also to be established.

• • •

A movement is on foot to build a motor racing track at Birmingham, Ala., somewhat on similar lines to that at Indianapolis. The project, upon which it is expected £32,000 will be spent, is said to be supported by the local Chamber of Commerce, and it is hoped to make Birmingham the centre of winter racing in the South.

• • •

It is proposed to add to the interest, from the motor vehicle manufacturers' point of view, at any rate, of the Show of Commercial Vehicles in New York by arranging a section for the exhibition of machine tools. The matter has been under consideration by the N.A.A.M. and the National Machine Tool Builders' Association for some time and an agreement approving the scheme has recently been reached.

• • •

In Grand Rapids, Mich., some motorists have been endeavouring to "improve the shining hour" by using coloured lights on their side-lamps. This has called down the wrath of the municipal authorities. A special ordinance has now been passed, which ordains that only white side-lights may be used on private motor cars. Official cars will, however, brighten the night, as fire brigade vehicles will carry red and green, police wagons red, and ambulances purple lights.

• • •

From Oakland, Cal., comes the story of how one motorist solved the repair bill problem. His car had cost £900, but within a very short time about £400 was spent in repairs. The owner therefore called the chauffeur and told him to take the car out and lose it. He replied he could not do that as the car was so well known, and would certainly be brought back. "Then sink it in the middle of the bay," rejoined his master, and within a short time the car was on the ferry boat, and in the middle of San Francisco Bay, where it was allowed to run overboard and end its extravagant career. The moral is obvious. But why not have sold the car and given someone else the chance to try and solve the problem?

There have been two notable retirements from the American industry recently. Owing to ill-health Mr. George M. Schebler has had to give up active participation in the business of Wheeler and Schebler, the well-known carburettor manufacturers. The firm, which started in an upstairs room and now has one of the largest plants of its kind in the world, will continue as before, with Mr. F. H. Wheeler as sole owner.

• • •

The second change comes through the D. W. F. Ball Bearing Co., of Germany, having purchased the interests of Mr. Henry Hess, in the Hess-Bright Co., of Philadelphia, who have represented the D. W. F. firm for a long time. Mr. Hess was responsible for a good deal of valuable research work in connection with ball bearings, and did a very great deal to further the use of them in the States. Mr. Bright has been elected president of the Hess-Bright Co.

• • •

The annual meetings of the American Society of Automobile Engineers will be held on the last three days of the New York Pleasure Car Show, Thursday, Friday and Saturday, January 16th, 17th and 18th. A banquet will be held on Friday, January 17th.

• • •

An arrangement has been come to by the Hoosier Motor Club and the Indianapolis police by which, should any member be arrested for any infraction of the speed or traffic laws, he will be immediately released on production of a special card of membership signed by the Chief of Police. The club will be responsible for the appearance of the delinquent before the "beak" next morning.

• • •

Pennsylvania is evolving what is claimed will be one of the finest State road systems in the country. At any rate it is to cost more than $50,000,000, and embrace about 8,000 miles of highway. A firm has been trying to secure a concession to run tramways on a certain section of the roads, but the Governor of the State has taken a very decided stand, not only refusing to grant the necessary permission, but stating that existing companies will not be allowed to extend their lines.

• • •

Down Los Angeles, Cal., way just now the Courts are somewhat severe upon scorching motorists. One wealthy offender who recently fell into the hands of the police was fined $100 and sentenced to 30 days in gaol. The latter part of the sentence was suspended providing the defendant would live up to the four following rules, which are to be submitted to all future delinquents.

Must not drive a motor car for one year.
Must not take a drink of liquor or enter a saloon for one year.
Must stay at his own home every night for a year, unless called away because of sickness or urgent business.
Must not ride in a motor car, where he has authority over the driver, for one year.

• • •

Having completed the work for which he was elected, of reorganising the General Motors Co., Mr. Thomas Neal has retired from the Presidency, and has been succeeded by Vice-President Charles W. Nash, manager of the Buick plant. Mr. Neal will continue as Chairman of the Finance Committee.

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MOTOR CYCLE MATTERS.

By "MULTI."

Cyclecars.

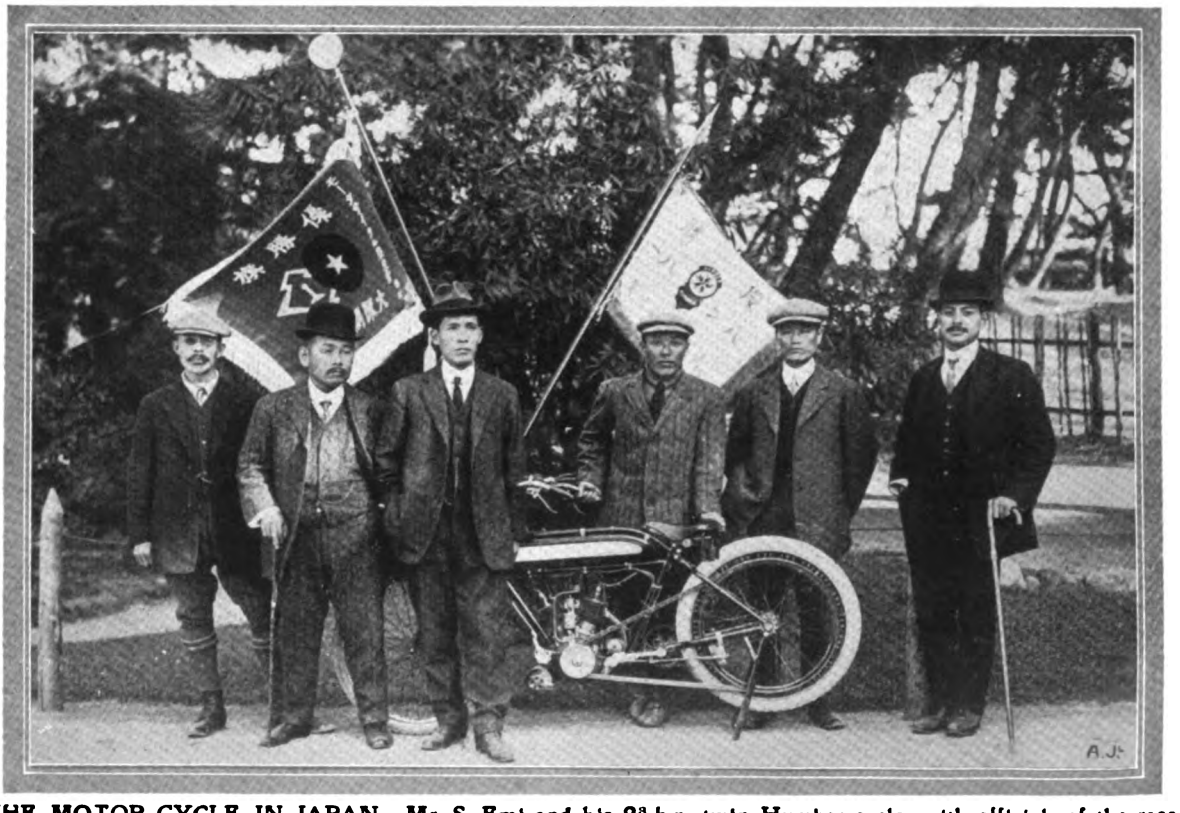
AN excellent suggestion was that made by Mr. H. Massac Buist in *The Motor World* a week or two ago, which was to the effect that a cyclecar trial should be held in Scotland next summer, to be conducted somewhat on the lines of the old popular Scottish trials for cars, for the purpose of improving the breed. With the suggestion as thus baldly stated, I think there will be few who have anything but praise to offer; but, on the other hand, I am just as confident there will be many motorists unconnected with the trade who will take exception to the further details of the scheme as outlined in Mr. Buist's article.

For instance, Mr. Buist takes for granted—indeed he lays it down as an axiom—that "the public which is waiting to patronise this newer branch of the industry requires to be furnished with only a *four-wheeled* vehicle, one which, accordingly, comes within the Treasury definition of a car, and which, by reason of its small motor, nevertheless does not involve the *paying of a tax of more than two guineas a year.*" In reference to these two points I would like merely to remark here that, assuming Mr. Buist to be correct in his assumption of what the public wants, then the manufacturers are working along entirely wrong lines, for to the best of my recollection at the moment there were only two makes of cyclecar exhibited at the show which complied with both these conditions; one of these was, to say the least of it, freakish, and the other was, I should imagine, certainly not the type of machine that Mr. Buist would expect to appeal to a large circle of his "public." In the latter instance, however, it is only fair to the makers to state that it was their cheapest and therefore their least desirable model.

Further on, "It is, therefore, plain that there is urgent need of a trial of cyclecars as a *four-wheeled class of vehicle only.*" And again, "The Scottish Automobile Club" (under the ægis of which body Mr. Buist proposes the trials should be held) "can take the plain and businesslike view by agreeing with the Treasury to accept any vehicle embracing the word 'car' within its title as being necessarily a *four-wheeled* machine."

Personally, it is anything but plain to me, neither does Mr. Buist in his article give any reason or present any argument as to why it should be plain to anyone, that it is necessarily a four-wheeled vehicle that the public wants. So far as I can gather, he contents himself by dismissing the claims of the three-wheeler for consideration on the grounds that it is merely a tricycle. As one of the public alluded to—*i.e.*, the cyclecar buying public—let me affirm just as plainly and emphatically that I should much prefer to see both three and four wheeled cyclecars tried out concurrently in these trials, should they, as I hope they will, eventuate. If due regard is paid to the relative cost to the purchaser and to running expenses, the results will place us all in a far better position to say which class of vehicle it is that we actually do require.

Fundamentally, the cyclecar is, as I conceive it, intended to appeal to the man whose means do not permit of his owning and running a car. That being so, it is evident that the machine must be as simple as possible in construction, consistent, of course, with its legitimate purpose, and, therefore, such a fundamental constructional



THE MOTOR CYCLE IN JAPAN.—Mr. S. Emi and his 2¾-h.p. twin Humber cycle, with officials of the race meeting (President, Mr. T. Adagaki, second from the right) held on November 10th at the Naruo racecourse.

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principle as to whether three or four wheels needs to be thoroughly investigated. At any rate, the lower the cost at which a cyclecar can be produced, the bigger the potential market, and if at the same time the saving in first and subsequent cost can be obtained without loss of comfort, speed, or safety by employing three wheels only —and so far I know of no evidence to show why it should not—then, I contend, it would probably be the three-wheeled cyclecar that the public will demand. At least, let the three-wheeler have a chance of being put to the test, and not bar it from the proposed trials because, forsooth, it is not a car within the Treasury definition. What does the public care whether the Treasury considers such a vehicle a car or a tricycle, I should like to know, except that of the two it would probably prefer the latter, seeing that the Inland Revenue licence is, for the time being at any rate, less than half the minimum tax of two guineas on the four wheeler? Why drag the Treasury into the question at all? It has already been authoritatively decided as to what constitutes a cyclecar. To quote Mr. Buist's own words when, after laying down his own definition of a cyclecar, he remarks, "At the moment I do not see where we need any more definite classification." Neither do I; but it is not Mr. Buist's or the Treasury's definition that I would accept. If the R.A.C. and A.C.U. have jointly given their ruling, why attempt to create another from outside sources for which there is at the moment no need? Surely this matter is best left in the hands of the R.A.C. and A.C.U., who may be expected to show more advanced knowledge of "what the public wants" than can the Treasury, or the Scottish Automobile Club either, for that matter. No, let us have the trials, by all means, but let *no* vehicles complying with the present definition of a cyclecar in respect to both number of wheels and size of engine be barred from competing.

The only present restriction as to engine size is that the volume swept out by the piston or pistons must not exceed 1,100 cc. Now most engines found on cyclecars are considerably under this capacity, and would be rated at somewhere about 10-h.p. by R.A.C. rating; consequently, when forming the power unit of a four-wheeled vehicle, they fall within the three guinea tax. To come within the two guinea classification their R.A.C. rating must not exceed 6½-h.p., and to meet this condition, which is also what Mr. Buist seems to suggest is that wanted by the public, implies either a complete departure in the design of engines at present employed on cyclecars, or the limiting of engines of current design to a twin-cylinder engine of about 72 mm. bore, *i.e.*, the average 5-h.p. twin.

With the idea of a cyclecar trial such as that suggested I am, as I have said, completely in favour, but no bias on the question of the best number of wheels should be allowed when drawing up the regulations. Let them all have an equal chance, and may the best type win.

The Case for the Three-Wheeler.

To my mind, whether the proposed trials be restricted or open, there is certain to be a huge demand for the three-wheeled cyclecar because of the obvious advantages it offers to those prospective cyclecarists to whom strict economy is essential, for it is cheaper both to buy and to maintain.

It is cheaper to buy because there is less material and less work in its construction, many mechanical parts being eliminated, such as the differential mechanism, for instance. Even now, one of the best three-wheelers is priced at a figure not exceeding that asked for a good twin-cylinder bicycle and side-car. It is cheaper to maintain because it is less in weight, therefore the wear and tear of tyres, and the consumption of fuel, should be less. Also the elimination of the differential or its substitute means fewer moving parts to be periodically renewed, and, further, the tax is less than 50 per cent. of the minimum for four-wheelers.

Many four-wheelers, of course, have no differential and rely on slipping belts to give the necessary balancing effect in the drive. In this case the initial cost should be about equal to that of the three-wheeler, other things being equal, but slipping belts means unfair wear, and belts are costly items to renew where there are two of them, so that any saving in first cost effected by this means becomes an additional maintenance expense.

The three-wheeled cyclecar, as a type, now has some considerable experience behind it, and has met with conspicuous success both on the road and track. On the road, for instance, the A.C. Sociable has proved itself particularly adapted for comfortable and reliable use under ordinary touring conditions. The Morgan has distinguished itself both on the road and track, one of its best performances on the road being the ascent of Porlock with passenger under particularly adverse conditions in the last six days' reliability trials, beating all other passenger machines. The Autotrix, another three-wheeler, was the only cyclecar, if my memory serves me right, to gain a first-class certificate in the A.C.U. spring trials, though competing with various four-wheelers.

One of the objections usually levelled against the three-wheeler is its incapability of holding the road steadily at speed. The Morgan, at least, has discounted this objection, for during its recent record-breaking performance of covering nearly 60 miles in the hour at Brooklands, it showed itself to be more than the equal of many, and the equal of any, four-wheeled cyclecars in this respect.

A logical objection against the three-wheeler also is that the third wheel is out of track and therefore comes into the worst part of the road sometimes. This, at any rate, has been frequently urged against three-wheeled vehicles, and it is necessary to take account of such objection. The answer that I would make, however, is this: that no cyclecar has a standard track and that so far as bad roads are concerned even a four-wheeled vehicle will have one of its driving wheels in the wrong place. Now we come to the objection that the three-wheeler does its driving work on a single tread and that the single tread will therefore be subject to more wear than would two separate tyres. This is, of course, largely a matter of the relative size of the tyres employed, but I suggest that although the single tyre will be renewed more often, it will not be renewed so much more often as will cause the expense to amount to so great an item as is represented by the renewal of both tyres of a four-wheeled vehicle. In short, I believe that the three-wheeler will carry two people under the same conditions as a four-wheeler for less expense in tyre consumption. This is a belief founded partly on personal experience and partly on information received. It is precisely one of the points that I should like the cyclecar trial to settle definitely. For this reason, if for no other, I consider that three-wheelers ought not to be barred from the proposed Scottish Trials.

Lastly, it must not be overlooked that one of the classes of motorist to whom the cyclecar is likely to make a strong appeal is the present side-carist, and in him, at all events, the three-wheeler should certainly find an adherent.

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The National Society of Chauffeurs

OFFICIAL NOTICES

President.
The Hon. RUPERT GUINNESS, C.M.G., M.P.

Vice-Presidents.—Hon. ARTHUR STANLEY, M.V.O., M.P.; LORD MONTAGU OF BEAULIEU; JOHN CATES, ESQ.; S. F. EDGE, ESQ.

Trustees.
Messrs. P. L. H. DODSON, W. M. LETTS, A. F. EASTON, H. PYE, J. H. CURSON, C. W. NAIRNE.

Chairman of Committee.—Mr. A. J. ALLISON.
Deputy.—Mr. A. HOLMES.

General Secretary.
ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

Objects.

To endeavour by all constitutional methods to procure the following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (*a*) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (*b*) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Clubhouse for members; Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

Official Notices.

The usual weekly meeting was held on Monday last. Present: Mr. A. J. Allison, chairman (presiding); Mr. J. Cates, vice-president; Mr. H. Pye, trustee; committee: Messrs. Moores, Adey, Tyler, Emmerson, Holland No. 2, Shaw, Rawson and Chappell.

The minutes of the previous meeting were read and confirmed.

A letter was read from Mr. Appleton regarding the case of member No. 1,260, summoned for obstructing the police by giving warning to a comrade that he was entering a police trap. The case was heard at Croydon on Saturday, 14th. Mr. Appleton defended the case, which resulted in an adjournment, in order that the police could obtain legal assistance. The committee decided to go further with the case if a conviction was obtained at the adjourned hearing on Saturday next.

Mr. Pye reported the result of the match for the "Shell" Billiard Cup between the N.S.C. and Wimbledon Motor Garage Club, which resulted in a win for Wimbledon by 62 points, and the winning of three games as against one win by the N.S.C. The games were keenly contested, and the unexpected happened, the N.S.C. champion giving away most points. The results were as follows:—

A. Worthington	Wimbledon	250		
P. Holland	N.S.C.	195	Wimbledon winning by 55 points	
D. Swan	Wimbledon	250		
J. Stovell	N.S.C.	232	Wimbledon winning by 18 points	
J. Cates	N.S.C.	250		
G. Hunt	Wimbledon	220	N.S.C. winning by 30 points	
P. Worthington	Wimbledon	250		
E. Emmerson	N.S.C.	231	Wimbledon winning by 19 points	

Total points: Wimbledon, 970; N.S.C., 908.

The Committee, while regretting the loss of points, congratulated Wimbledon on their win. The next match will be played on Monday, December 23rd, between Rawlings Garage Club and the Society of Automobile Mechanic Drivers.

Letters were read, and the secretary instructed as to replies from Mr. Hunt, Enfield; Mr. Whittle, Brighton; Mr. Egerton, St. John's Wood; Mr. Flynn, Manchester; Mr. Darmaros, Grasse, France; and Mr. Dixey, Eastbourne.

Arrangements were made for the visit of the Society of Automobile Mechanic Drivers on Friday, the 20th. Members receiving their "AUTO." in time to read this announcement, please turn up to give a welcome to our guests.

Review of Events.

Horrors upon horrors! Not only have we been well beaten at billiards, and our champion wiped out, but someone has sent me two pink bows. They tell me I woke up on Friday morning shouting "Well played, Wimbledon." It is only natural that I should do so; Wimbledon is my team. Percy says I'm a fraud for claiming the winners as my team. Now I venture to say that if you ask any member of the Wimbledon Club who is their "Uncle Arthur," they will answer, "Sexton," and so I repeat "Well played, Wimbledon." Christmas being at hand, I am buying Percy a croquet set for a present, and at our next concert am singing a song composed by myself, entitled "Has anybody here seen Percy, P-E-R-C-Y." They tell me that my team, Wimbledon, have ordered a glass case for the cup, but they've got a long way to go before winning, and it is just possible that my other team, when the return match is played, will bring away more than 62 points. In that case, of course, Wimbledon is not my birthplace.

They say that Wimbledon has a mascot, Williams by name, who travels with their various teams. One can hardly deserihe this asset of the Wimbledon team; therefore, if you look at Williams and say "Mascot!" you probably have the correct term. At any rate, he's a very persevering young fellow. Failing to induce me to play him at shove-ha'penny, he drew half-a-crown on behalf of the football team. I guess the Salvation Army would be glad of the Wimbledon mascot at their drumhead collections. However, Wimbledon has my hearty congratulations upon its splendid victory, and Percy my heartfelt sympathy.

The case of member No. 1,260 will probably make history. Whether it is one's duty as a citizen to see an offence committed without warning those about to commit the offence, or wait until the offence is committed before acting in the matter, is a point worthy of consideration. If I tried to set a house on fire, surely it would be the duty of the first person who saw me to prevent such an offence being committed against the law. No doubt I should be promptly handed over to the police, and the person who prevented me doing an act whereby the police could proceed against me would be commended by the magistrates. Not so in police traps. The police place themselves in a certain road and say "Now come along drivers, and break the law, of which we are paid to prevent any breach." Whether our member is convicted or not, one thing is certain. There is need for alteration in the laws which deal with motoring.

The smoking concert, or "Go as you please" perhaps would be the proper term, was not so well attended as expected, but those who did turn up enjoyed the fun and parted very happy. Mr. Wade accompanied at the piano. Mr. Moores was delightful in his military song, and "Come back to Erin," but when he attempted a comic song with twenty-one verses everyone began to feel for a revolver. Mr. Bradley sang three songs with a gusto that had the effect of fetching small flakes off the ceiling. Mr. P. Holland—our Percy—sang "Asleep in the Deep." He got on well until someone said "Since Thursday"; then he woke up and received a deserved encore. "Meet me to-night in Dreamland" was the encore song. That Percy knew something about Dreamland was evident, for after turning over his music, he lost the place, with the result that Mr. Bradley kindly went to his assistance. This combined effort had its sequel in a duet, entitled "Thora," from Percy's extensive repertoire contained in the Christmas pantomime song book (one penny). The audience were unkind to treat this as a comic song. They simply screamed; it was too funny for words. Mr. Dunckley contributed four songs, being deservedly encored. Songs were also sung by Mr. A. J. Allison, Mr. Rutland, Mr. J. Emmerson, Mr. Day, Mr. Rawlinson. Mr. J. Brown popped in and sang "I'm Henry the Eighth, I am," giving as an encore "Bobbing up and down." Mr. A. Cutter sang two songs. He is a very kindly-disposed young man, but why he should continually look at me when singing needs thinking out. His song was entitled "I'm proud of my old bald head." I have another cause for complaint. After doing my best to warble, I was informed that I could not sing so well as I could tell the tale. I am still trying to grasp the meaning of this remark.

Please Note.—Grand Concert, Ladies Invited, on Thursday, January 23rd.

Accepted for Membership.

S. A. Hardy, Wimbledon, S.W.
P. A. S. Foot, Kensington, S.W.
W. J. Ridgwell, London, S.W.
J. P. Cook, London, W.
Frederick Green, King's Lynn
G. A. Hellawell, Pimlico, S.W.
Walter A. Keane, St. John's, Newfoundland
Charles D. Harris, Cardigan
G. L. Keen, Forest Hill, S.E.

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Applications for Membership.

George Arrondeau, Chelsea, S.W.
John Bennett, Sheringham
John Morrison, Chester
Tom M. Meredith, Monmouth
John W. Everrett, Fulham, S.W.

Any member wishing to raise an objection to the election of an applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

ARTHUR SEXTON.

Particulars of Membership.

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (*including entrance fee*), 2*s.* 6*d.* Subsequent subscriptions, 2*s.* per month. Payable in advance on the 1st of each month. Badges, 1*s.* 1*d.*, post free. Members may pay yearly 21*s.*, or half-yearly 10*s.* 6*d.*, payable in advance. A copy of the AUTO. is posted weekly to all members whose subscriptions are not in arrears, in order that they may be kept well posted in the progress made by the Society.

APPLICATION FORM.

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,
Hyde Park Corner, S.W.

SIR,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2*s.* 6*d.* (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed

Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.

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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

CHESHIRE.—*Congleton-Wilmslow Road.*—Half width of Marton Bridge under repair; this is about 4 miles from Congleton, care is necessary.

Members are warned to slow through Altrincham and Northwich.

GREAT NORTH ROAD.—Under repair half width in High Street, Baldock, roller working, no lights at night. Road is in bad condition between Potters Bar and Knebworth. Under repair full width 10½ miles north of Morpeth, special care is necessary at night.

LANCASHIRE.—*Preston-Blackpool Road.*—Full width in very soft condition for a considerable distance in Long Lane, Ashton, 2 miles west of Preston.

Members are warned to drive slowly through Broughton village 3¾ miles north of Preston, also through Garstang 10¾ miles north of Preston.

Preston-Wigan Road.—In very soft and dirty condition on Walton Brow, 2 miles south of Preston, also on Fishwick Hill, 1¼ miles south of Preston, caution advised.

Preston-Blackburn Road.—Full width in soft state on Brockholes Hill, 2 miles east of Preston.

YORKSHIRE.—*Doncaster-Selby Road.*—Seven miles north of Doncaster the road is obstructed owing to the sinking of a drain; lights at night.

Leeds-Wetherby Road.—Re-metalling and roller working full width between the 7th and 8th milestones from Leeds.

Otley-Addingham Road. — Re-metalling and roller working between the 5th and 6th milestones from Otley, full width.

EAST.

LONDON-YARMOUTH ROAD.—Members are warned to drive with caution between Kessingland and Lowestoft as the roads are very heavy and dangerous to motor cyclists. New water main being laid through the village of Ingatestone, lights at night.

ROYSTON-NEWMARKET ROAD.—Water is still under the Railway Bridge at Pampisford station.

SOUTH.

BATH ROAD.—Members are warned to drive slowly from Twyford to Sonning cross roads at night. Under repair between Calcot and Thatcham. Members are warned to drive slowly between Twyford and Henley, and between Wargrave and Henley as the road is in bad condition; also between Marlborough and Chippenham.

EASTBOURNE ROAD.—Under repair between Lewes and Eastbourne, Lewes-Uckfield. Sewer being laid on Godstone Hill, only room for one car to pass at a time.

LONDON DISTRICT.—Members are warned to drive slowly in the Mitcham district on Saturdays and Sundays as controls are worked from Tooting Junction Station, also down Mitcham Lane and Figg's Marsh, for cars proceeding in the Brighton direction during the morning. In the afternoon the controls are reversed and worked towards London; a control is also worked through the 10-mile limit. Monday mornings special care is necessary as in addition to the controls mentioned above there is another worked from the top of Clay Pitt Hill on the Sutton-Mitcham road, just before entering Mitcham.

SOUTHAMPTON ROAD.—*Basingstoke District.*—The road is being re-metalled full width half-mile north of Overton on the Salisbury road, loose metal left at night. Under repair between Mapledurwell and Basingstoke.

WINCHESTER-BOURNEMOUTH ROAD. — Re-metalling in hand between Hursley and Pitt village, full width. Patching the road between Cadnam and Lyndhurst.

SURREY.—*Kingston-Leatherhead Road.*—Members are warned to slow down between Chessington and Hook as a control may be working.

Portsmouth Road.—Flashlight controls are likely to be working between Kingston and Esher.

Worthing Road.—Roller working at Epsom Common full width, lights at night.

Eastbourne Road.—Members are warned to drive slowly as a control is likely to be working near Kenley Police Station and at the Gas Works, Whyteleafe.

WEST.

EXETER-HONITON ROAD.—Repairing in hand at Fairmile, 9 miles east of Exeter, full width, lights at night.

WELLINGTON-TAUNTON ROAD.—Stone-laying operations are being carried on 3 miles N.E. of Wellington for 200 yards, full width, roller working, lights at night.

BRIDGWATER-BATH ROAD.—Foundations are being laid for 200 yards full width at Polden Hill 6 miles north of Bridgwater, lighted at night.

EXETER-BRISTOL ROAD. — Foundations are being laid for 100 yards full width at Bathpool 2 miles north of Taunton, lights.

GLOUCESTER-BRISTOL ROAD.—Coaley parish, between the 10th and 11th milestones from Gloucester, under repair full width, clear at night.

GLOUCESTER-NEWNHAM ROAD.—Under repair and roller at work three-quarters width of road, clear at night.

COWBRIDGE ROAD, ELY.—Under repair and roller working full width, lights at night.

GLOUCESTER, CHELTENHAM AND OXFORD ROAD.—Cheltenham Parish, 2 miles from town, granite being laid whole width, lights.

Andoversford.—Bridge being rebuilt on roadway, half width closed to traffic; care is necessary when travelling at night.

MIDLANDS.

COVENTRY ROAD.—*Dunstable-Fenny Stratford.*—New foundations being laid by the 40th milestone, half width. Road surface in very rough condition between the 37th and 38th milestones, also the 38th and 39th milestones.

LEAMINGTON-RUGBY ROAD.—Road widening and new foundations being laid at New Cubbington village from the Rugby Tavern to the Kenilworth cross roads; members are warned to keep to the middle of the road after dark, no lights at night.

Roller at work one mile out of Leamington, full width for about a quarter-mile, no lights at night; members are warned to drive with care after dusk.

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Unrenewed Driving Licences.

THE excuse that they were not aware that the man had not renewed his licence, was sufficient to secure the dismissal, at the Wood Green Police Court on Saturday, of a summons against a firm for employing an unlicensed driver.

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Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

109.

REMOVING CARBON DEPOSIT.—I have a 25-h.p. Maudslay car, the engine of which carbonises rather more quickly than I like, but otherwise gives me no trouble. Getting rather tired of having to take down the cylinders in order to get rid of the carbon, I thought of having the cylinders cleaned out by what is known as the Cyclean process. I had heard of the good results obtained by this method on other cars, and thought, if it were similarly successful on mine, I might quickly get rid of the pre-ignition trouble, which, when allowed to go on for more than a very short time only, is liable to do no end of harm to a good machine.

But although the carbon was burnt out, or, to be correct, an attempt was made to burn it, after running for ten miles only, and switching off, I found that my hopes were futile, for my engine started reversing. As the motor is otherwise in good order, and has no projecting parts inside the combustion chamber that might become incandescent and cause pre-ignition, I can only conclude that the process is either not applicable to all kinds of engines or that it has not been used with the necessary care in my case. The only really effective way to get rid of the carbon, therefore, still seems to be the good old, but cumbersome and laborious method of dismantling the cylinders and scraping the piston heads by hand.

Apart from the burning out, which I have tried to point out as unsatisfactory, it so happens that I found a good many "chips" of burnt oil, which, I presume, have dropped from the interior of the piston, in the base chamber. There was a sufficient quantity of them to stop up the opening leading to the suction-pipe of the oil-pump, so that unless the crank-case is cleaned out immediately after the burning-out process, the engine is likely to suffer from insufficient lubrication.—*N.S.C.* 942.

110.

ANOTHER VIEW ON THE SAME SUBJECT.—In these days of large monobloc engines running at high speeds and with the lubricant fed to all the bearings under considerable pressure, carbonisation develops much more rapidly than it used to do in the old days with their slow running engines. Early last year I found that my 35–50-h.p. Fiat engine wanted cleaning out, and as I had absolutely no tools or tackle wherewith I could lift or handle the big monobloc casting, I thought of having the carbon burnt out by the Cyclean process. I had had my doubts about the success, but was agreeably surprised to find that it answered perfectly. I cannot actually say whether the last shred of deposit was taken out of the engine, but those parts of the piston and cylinder-walls that I could see through the valve caps were perfectly clean. The process certainly stopped the pre-ignition, improved the running and the pull of the engine in an unmistakable manner, and reduced the petrol consumption to some small degree. This latter fact, to my mind, is the best proof in favour of the Cyclean process. My employer, who drives a good deal, was particularly pleased, and asked me to have the engine cleaned out by this process at regular intervals, which I did for nearly a year. But it always costs a sovereign, and sometimes I was out of town and travelling with my car in places where the process cannot be applied because no garage is equipped for it.

So it happened that early this year I found myself at the country place of one of my bosses' friends, the proverbial "miles" from any garage. My engine was badly sooted up, and, having a day off, I tried to get rid of the deposit by some mechanical means and without taking down the cylinder casting. After various unsuccessful attempts, I succeeded in making a kind of scraper from some quarter steel wire. I bent it and flattened out the point in the manner shown in the sketch, so that it could



be introduced through the valve caps and worked without difficulty. I paid particular attention to the point of the tool, which I ground to the shape shown, *i.e.*, neatly rounded off on either side so that I could not do any damage to the cylinder-walls.

Most of the chips of carbon I could rake out with the scraper, but to make sure that all the dust came out of the cylinder, I gave it a good blow through with the tyre-pump. When I had spent the best part of an afternoon in this manner, I found that I had produced the same result as had been obtained by the oxygen process, only it did not cost anything. I have, of course, kept the scraper, and have now used it with complete success for nearly a twelvemonth.—*Holland No. 2.*

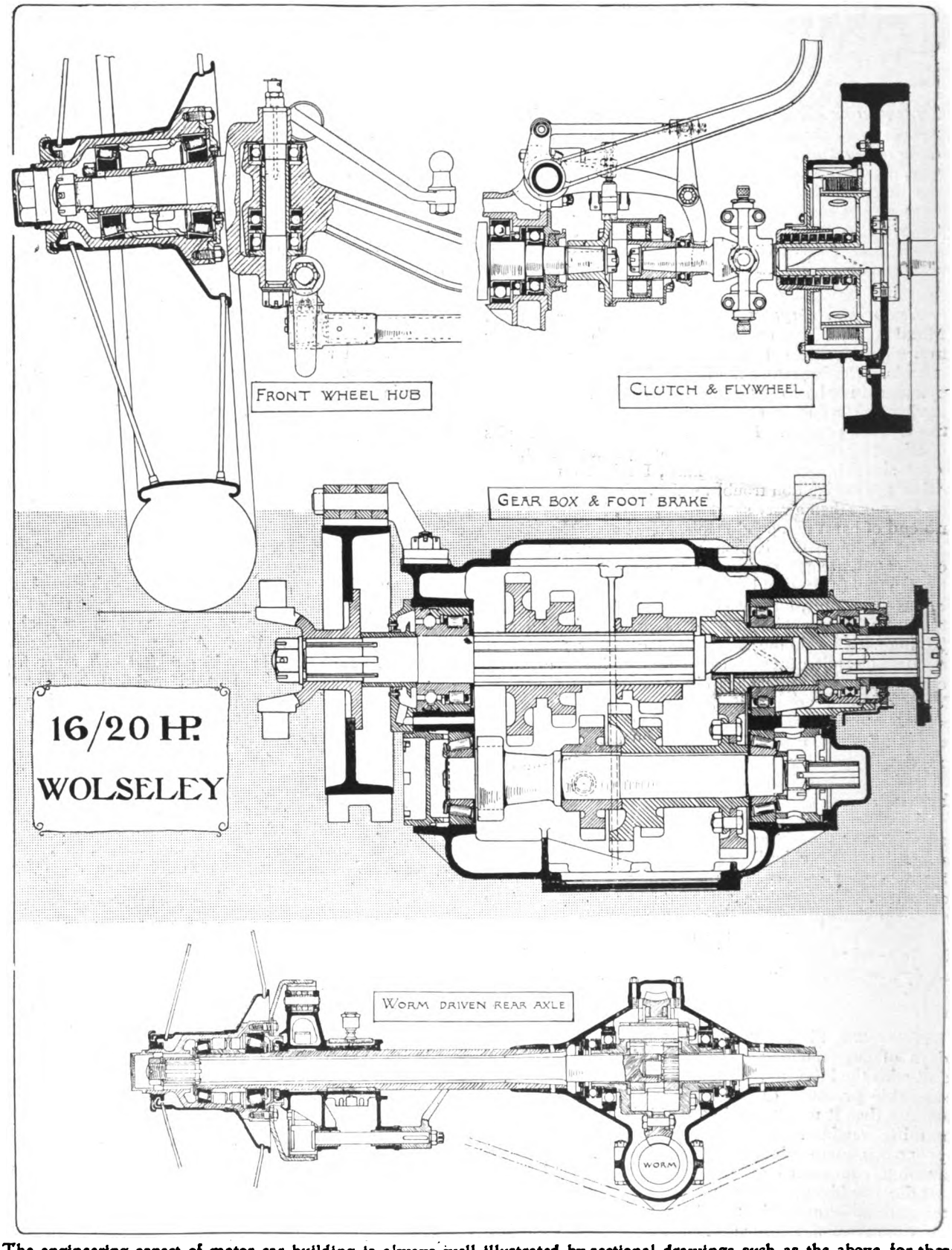
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Drive Carefully at Sevenoaks.

MAINLY owing to the careless driving of a few motorists, there is considerable agitation just now in the district of Sevenoaks in favour of an application for a ten-mile speed limit. It is hoped, however, that if all motorists bear this in mind and drive with even more than ordinary consideration for the inhabitants and other road users, that a less antagonistic feeling will ensue.

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MOTOR CAR CONSTRUCTION.

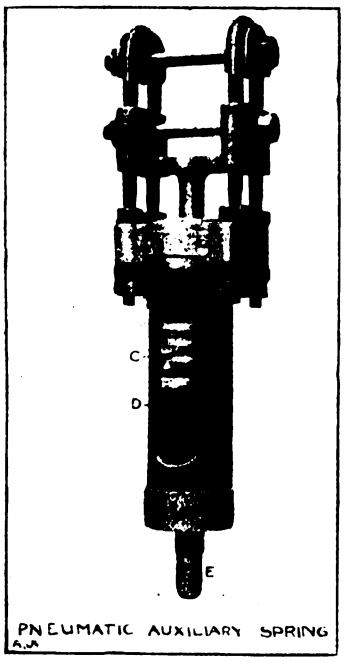


The engineering aspect of motor car building is always well illustrated by sectional drawings such as the above, for these show the very great amount of detail that has to be attended to by the designer and by the works manager before the machine arrives at its proper state of perfection in which it passes into the owner's hands. The Wolseley Co. are pre-eminently engineers in the automobile business.

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FOREIGN MISCELLANY.

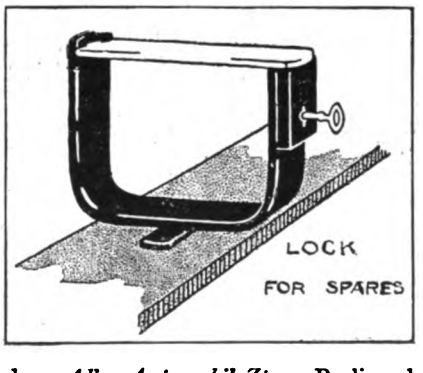
A pneumatic auxiliary spring.—Though externally it resembles many of the coiled spring devices of this class, and is intended to be used and fixed in the same way, the appliance before us consists of a cylindrical body in which moves a piston; this is made air-tight by means of a cup leather, D, and a number of ordinary iron piston-rings, C. A valve, E, is provided, by means of which the air pressure can be raised to the desired amount depending on the load to be carried.—*Omnia.*



PNEUMATIC AUXILIARY SPRING

The emission of smoke from motor cars.—The German Courts have recently given two decisions of considerable interest as bearing on this subject. In the latest, the driver of a commercial vehicle was prosecuted because his car emitted large volumes of smoke when accelerating, &c. Evidence was tendered on behalf of the defence that the car was a standard model fitted with mechanical lubrication over which the driver had no control whatever. Held: that the driver could not be held responsible for the offence which the Court considered had actually been committed. We wonder that the point has not yet cropped up in our own Courts, as the phenomena of causing smoke when accelerating is very far from being a rare one—*Automobil Welt.*

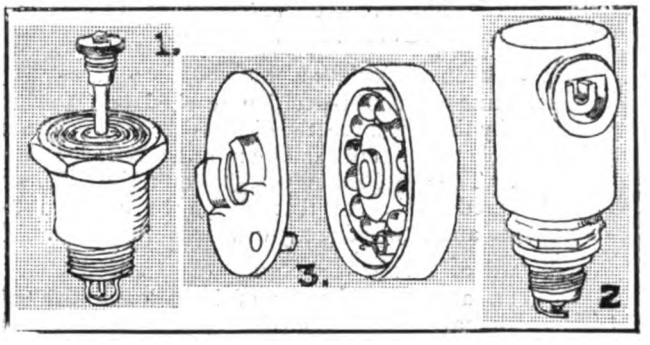
To prevent the theft of spare tyres, wheels, &c., usually carried on the running boards of a car, many locking devices have been introduced at various times. A simple but effective one of German origin is shown herewith; it is made in different forms, according as to whether it is to be used for tyres, rims, or wheels.—*Allg. Automobil Ztng.*, Berlin ed.



Three German novelties.—The first consists of an ignition plug fitted with an observation window; this in itself is no novelty, but the location and shape of the window in this case is distinctly original. As will be seen from the illustration, Fig. 1, a disc of thick corrugated glass has been let into the upper part of the steel body of the plug. An observer is therefore enabled to look *right down into the combustion chamber* and so observe the flame of the explosion instead of examining the latter only by means of its reflection through a side window.

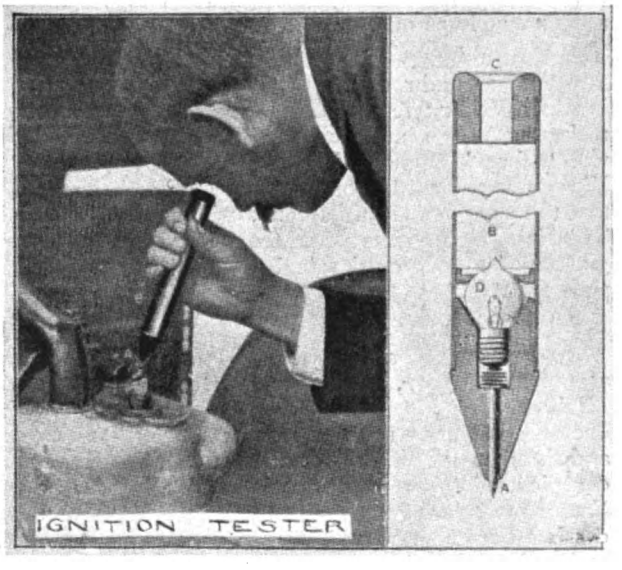
The second novelty, Fig. 2, consists of an ignition plug, the central electrode of which is entirely encased in porcelain so as to avoid all possibility of short circuiting; the plug is intended for motor boat engines, but something similar would be appreciated by motor cyclists.

The third accessory, Fig. 3, an automatic magneto advance, is of interest to owners of cars which are fitted with fixed ignition, as it is easily fitted to the latter and should make a marked improvement in the running of



the vehicle. The little device consists of a metal drum inside which is coiled a flat steel spring, one end being anchored to the drum and the other forming a loop; inside the spring are a number of steel balls, arranged like the balls of a ball bearing. The drum is closed by means of a disc, the inner side of which carries a pin which enters the loop of the steel spring before mentioned. The other side of the disc carries the usual jaw-coupling by means of which the magneto is driven. When the magneto drive is rotating, the balls will tend to move outwards under the influence of centrifugal force, and this will cause the spiral spring to uncoil partially, thereby establishing a relative motion between the driving and driven member.—*Automobil Welt.*

An ignition tester.—This device consists of a small incandescent lamp, D, one terminal being connected to the pointed rod, A, and the other to the brass casing of



the instrument, B. The point, A, is applied to the plug to be tested, and if this is in proper working order the lamp, D, will light up at regular intervals, this fact being observed through the window, C.—*Allg. Automobil Ztng.*

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CURRENT ITEMS OF INTEREST.

A.C.F. Grand Prix.

ON Tuesday last the Automobile Club of France came to a definite decision as to the course for the Grand Prix race next year, eventually choosing that known as the Amiens circuit. This is about 19 miles round, and starting at a fork about 2½ miles from Amiens, goes quite straight for 8 miles, then shortly after Domart a sharp turn is made to the right for Moreuil, where another turn is taken, and a winding road leads back to the starting point.

A Paris Salon Next Year.

ANOTHER important decision reached on Tuesday was that by the Chambre Syndicale des Constructeurs d'Automobile to hold an Exhibition in the Grand Palais next year. The 1913 Salon will, however, be different from its predecessors in that it will be confined to automobiles and things directly connected therewith.

No Award of Dewar Trophy.

AFTER careful consideration of the various individual trials which have been held this year, the Expert and Technical Committee of the Royal Automobile Club have decided to make no award for this year. Since 1907, when the Trophy was handed over to the R.A.C. by Sir Thomas Dewar, it has been awarded in respect of the most meritorious performance in an individual trial under the R.A.C. regulations. Last year it was awarded to the 65-h.p. 6-cylinder Napier for a non-stop run from London to Edinburgh and back.

Motor Cycling in Japan.

IN addition to winning the championship of Japan, which is said to be the most coveted honour in motor cycling circles in those parts, a 2¾-h.p. twin light-weight Humber succeeded in winning seven first prizes and one second in a meeting held at Naruo Racecourse on November 10th. The programme comprised seventeen events, and the Humber, ridden by Mr. Shigesaburo Emi, took part in eight, and in the championship race covered 6·5 miles in 6 mins. 59 secs., at a speed of approximately 56 miles per hour.

The Battle of the Tyres.

THE second round, with grooved tyres, of the trial in which Victor tyres are being run against three other makes, although not quite finished, has resulted in victory for the Dunlop. It was at first thought that the Victor was second, but on checking mileages it was found that the Continental was second, with the Victor third. The last report was that the Dunlop had covered 3,560 miles. The third round will now be run off with plain tyres.

British Cars at Petit Salon.

AMONG the small array of cars which are to be seen at the Petit Salon, which was opened by the French Minister of Commerce on Saturday last, and will remain open until January 1st, the 11·9-h.p. Arrol-Johnston car and the 15·9-h.p. chassis of the same make stand out conspicuously. From its consistent running in the big French races during the past two years, the Arrol-Johnston car has become very well known to French motorists, and quite a number of them are to be seen on the French roads. Another British representative in the overflow show in the Jardin de Paris is the A.C. cycle car, which is shown with various bodies for private and commercial work.

Queen Alexandra Buys Model Cadillac.

THE Model Cadillac car at the Paris Salon, which attracted the attention of President Fallières, has now found a Royal owner, having been purchased by Queen Alexandra. The little model, of which we give a photograph, was built exactly to scale two-fifths the size of an ordinary car, the wheel base being four feet. Power, which is provided by a Cadillac self-starter, is conveyed by a shaft to the live axle and with its full complement of passengers, two children and occasionally a huge teddy bear on the dicky seat, the speed is 16 miles an hour. The control is by means of a lever working in a quadrant. Wheels and tyres, 15 ins. by 2 ins., were specially made by the Dunlop Rubber Co.; a miniature of a real Klaxon horn was provided by the Klaxon people, and similarly the electric lamps are correct reductions of standard patterns. The body was built by Messrs. Lockwood and Co., and carries a diminutive but thoroughly serviceable hood and screen.

Inland Revenue from Motor Cars, &c.

IN reply to a question as to the receipts from motor and carriage licences, the Chancellor of the Exchequer has furnished the following information:—

	1908–9.	1909–10.	1910–11.	1911–12.
	£	£	£	£
England and Wales ...	536,954	614,125	940,786	909,922
Scotland	64,002	65,407	102,104	94,168
Ireland	—	—	19,057	15,826
Total (United Kingdom)	600,956	679,532	1,061,947	1,019,916

Mr. Lloyd George adds that the amounts paid to the Road Board under Section 90 of the Finance (1909–10) Act, 1910, up to March 31st, 1912, were £830,302.

R.A.C. Technical Committee.

CONSEQUENT upon the resignation of Mr. Dugald Clerk, Mr. G. H. Baillie has been elected Chairman of the Expert and Technical Committee of the R.A.C., and Dr. W. Watson, F.R.S., succeeds Mr. Baillie as Vice-Chairman.

To Try "One-Way" Streets.

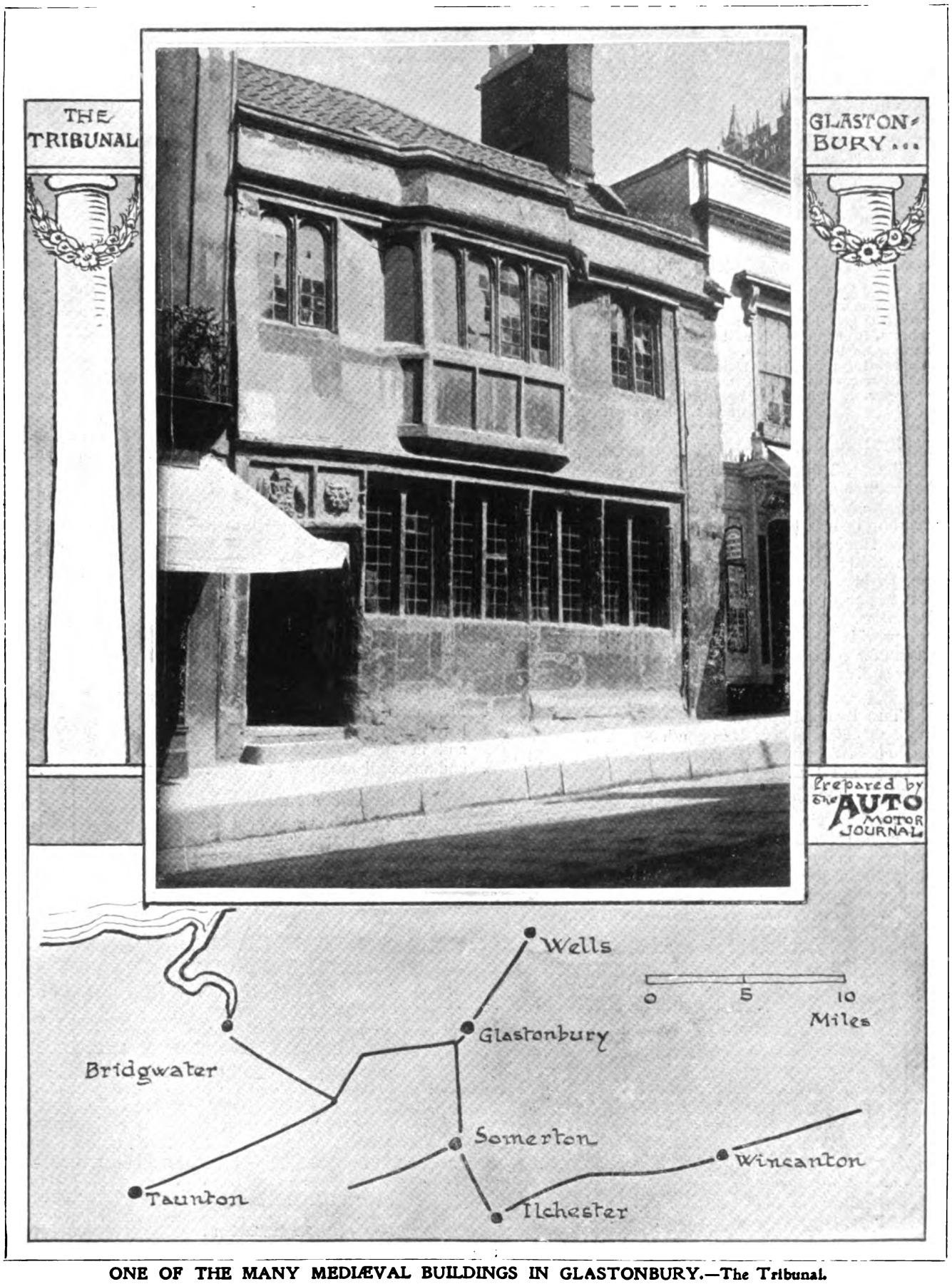
WESTMINSTER City Council is to try the effect of notices regarding "one-way" traffic in Deanery, Jermyn, and Arlington Streets. The Commissioner of Metropolitan Police has stated that he has no objection to the Westminster Council, on their own responsibility, trying the experiment, though he doubts very much whether the consequent improvement in the traffic in Piccadilly will be of much value. In fact, he feels that the addition to the east-going traffic may be detrimental, and should he find the trial unsuccessful, he would feel compelled to ask the Council to remove the notices.

H.F. Vulcanizers at South Kensington Museum.

VISITORS to the Royal Albert Museum at South Kensington will, in future, have an opportunity of studying the operation of repairing tyres, as, at the invitation of the Board of Education, a selection of H.F. portable vulcanizers and specimen repairs, showing the H.F. process, have been placed in the Science Museum. By the action of the Education Board, there will thus be a permanent exhibition of methods and appliances used in vulcanizing as applied to motor tyres. Some little time back Messrs. Harvey Frost were invited to demonstrate their process before the Royal Institution.

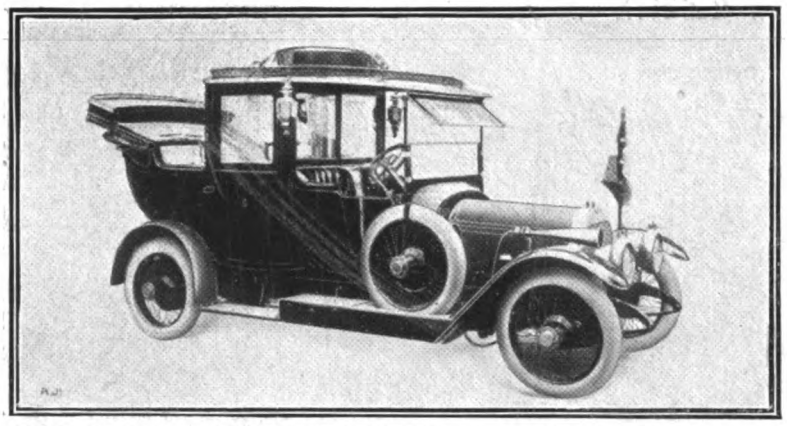
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WITH THE CAMERA AND THE CAR.



ONE OF THE MANY MEDIÆVAL BUILDINGS IN GLASTONBURY.—The Tribunal.

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H.M. the Queen of Holland's 30-h.p. Limousine Landaulette Spyker.—The colouring of this beautiful carriage is dark royal blue picked out with very fine gold lines. It is fitted with Rudge-Whitworth detachable wire wheels, in addition there being one spare wheel in the roof box and another on the foot-board. C.A.V. dynamo-accumulator is employed for the lighting throughout, including three roof lights and two step lights, the latter coming automatically into use when the doors are opened. The wind-screen fittings are by Auster, Ltd. Note the Royal crowns on the lamps and the flag on the bonnet.

The Training of Automobile Engineers.

THIS will form the subject of the next meeting of the Institution of Automobile Engineers on January 8th, and as we have previously mentioned, it will be a somewhat novel paper, having been prepared by four members of the Graduate Committee. They have, themselves, only recently completed their training, and should, therefore, be in a very good position to speak in regard to what appear to be the advantages and disadvantages of the various systems at present in operation. It should also provide a good deal of material for the I.A.E. Bureau for giving information on this matter to parents and guardians.

The R.I.A. Moves.

THE Roads Improvement Association has moved into new offices at 15, Dartmouth Street, Westminster, London, S.W., to which all communications should be addressed in future.

Lectures on Carburation and Fuel.

HAVING given a great deal of attention to the subject of carburation and liquid fuels, Mr. R. W. A. Brewer is arranging to give lectures on these subjects during the winter. Recently he gave an address to the Cambridge University Engineering Society, when special reference was made to his experimental work in connection with "Small Fuel Orifices."

A Motor Ambulance for Johannesburg.

THE Municipal Council of Johannesburg is setting a very good example to a good many towns in the old country in that they intend starting a motor ambulance service. Tenders are being invited for a four-cylinder 22 to 28 h.p. vehicle of this description.

R.A.C. Driving Certificates.

FROM the beginning of next year the examinations for the R.A.C. driving certificates will be re-arranged. In the mechanical proficiency examination all candidates will undergo the same tests, and according to their capabilities they will be awarded first or second class certificates. The officers and owners mechanical proficiency certificates will be issued on the same basis as before, but in the examination for paid drivers there will be three classes. The first class will correspond to the present driver-mechanic's certificate. The second class will be an intermediate examination, taking the place of the old paid-driver's class, but the conditions will be more stringent with the intention of attracting the man who is already a driver of some experience. As this will probably be too severe for the man who has just completed his course of tuition a third class (preliminary examination) has been added.

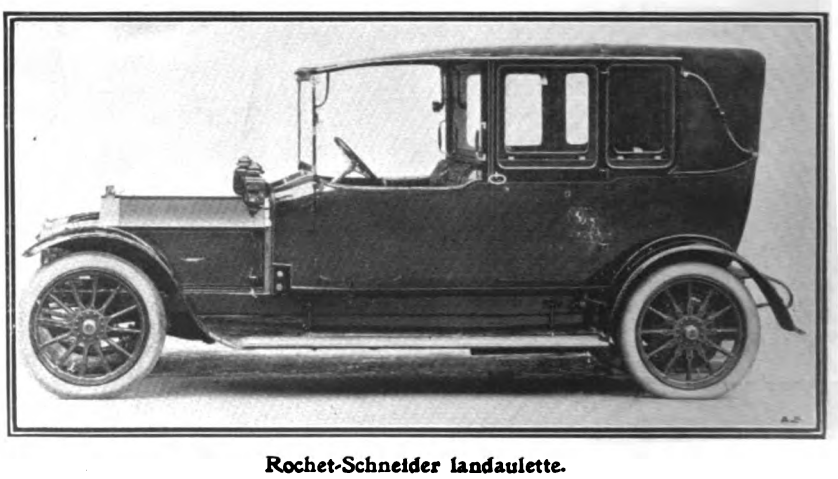
Essex Motor Club at Dinner.

ANOTHER of those enjoyable functions for which the Essex M.C. is making a name was their annual dinner held at the Great Eastern Hotel on Saturday last. Following precedent, Mr. Stenson Cooke occupied the chair and fulfilled the duties admirably. In proposing the toast of "The Club" he referred to the energetic work of the past season, and said that between twenty and thirty events had been organised, and the members of the Club were such capable riders that in the non-stop ride to York exactly half of the forty-eight entrants qualified for gold medals. The President, Mr. S. G. Cummings, in responding, referred to the success of the Club at the R.A.C. Associated Clubs meeting at Brooklands.

He also said that the Club wished to tender its thanks to the Brooklands Automobile Racing Club for offering them the free use of the track for meetings during the coming season. Among other speakers was Mr. Bass, who said that last season's prizes numbered more than 200. After the dinner the prizes and medals were distributed by Mrs. Stenson Cooke, and an excellent musical programme was gone through.

Road Improvements on South Coast.

WITH the assistance of a contribution of £11,000 from the Road Board the East Sussex County Council can expend £27,000 on widening and improving the road at Lewes to Newhaven.



Rochet-Schneider landaulette.

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S.M.M.T. to Visit America.

THE party of British engineers which will be visiting America next spring will be larger than was at first anticipated, as the invitation of the American Society of Automobile Engineers to the Institution of Automobile Engineers has now been extended to members of the Society of Motor Manufacturers and Traders. A joint committee of the two latter bodies is now working out the programme, which will include a number of visits to automobile factories as well as works producing steel springs, tyres, carriage work, and other motor car details, while three days will be spent on board the biggest passenger steamer on the Great Lakes on the occasion of the annual summer meeting of the S.A.E.

spoke strongly on the need for getting injured persons to the hospital as quickly as possible, but in properly constructed vehicles, and his remarks led to the offer of this splendid gift.

Russian Motor Car Show in May.

AFTER an interval of three years, the Russian Imperial A.C. has decided to revive the St. Petersburg Motor Car Show, and it will be held next May under the patronage of His Imperial Majesty the Czar. The French Chambre Syndicale is taking an active interest in the arrangements and it is anticipated that the French constructors will be strongly represented. Since 1910, when the last St. Petersburg Exhibition was held, the various races and competitions which have been held in Russia, have done a good deal in the way of emphasising the capabilities of motor cars, and it is anticipated that the Show will lead to a good deal of business for those who support it.



MICH'S IDEAS OF VISITORS TO THE PARIS SALON.—1. The constructor. 2. The first buyer. 3. The important client. 4. The agent. 5. The advertisement broker. 6. In the Auto Salon and on a business stand. 7. The catalogue collector. 8. The free gift collector. 9. Photographs. 10. A French nut.

Workmen's Fares on Motor 'Buses.

IN the House of Lords last week, Lord Monk Bretton asked a long question, one part of which referred to the possibility of the Government introducing legislation with a view to making the omnibus companies arrange workmen's fares. In reply, Earl Beauchamp said the Government had no authority to interfere with the fares charged by the motor 'bus companies, or to regulate the companies in any way. He could not hold out any hope that the Government were likely to introduce legislation dealing with the subject.

Motor Ambulance for North London.

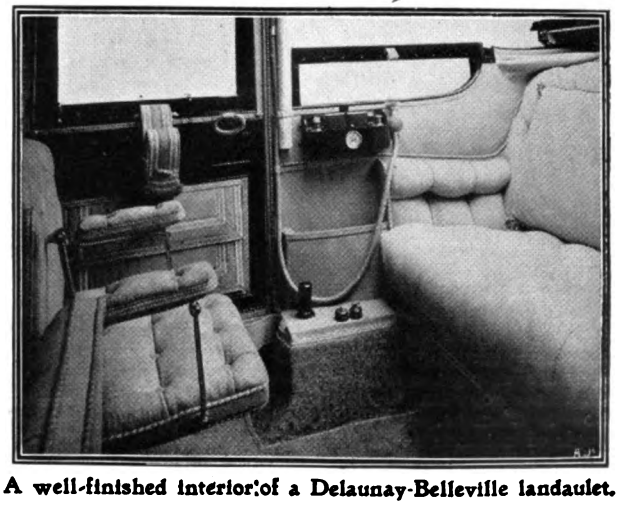
THROUGH the generosity of the Grand Duke Michael, North London is to have a motor ambulance which will work in connection with the Hampstead and North London Hospital. At a dinner recently held in connection with that institution, Sir William Collins

Retaliation at Barnsley.

SNUBBED by the railway company, the good citizens of Barnsley are looking to the motor 'bus for the solution of the problem of linking up the various populous districts in their neighbourhood. The vehicles are being put on the road by the local Electric Traction Co.—an offshoot of the British Electric Traction Co.—which finds the price charged for electricity by the Corporation is a stumbling block to the extension of its, at present, somewhat meagre tramway service. One 'bus service which has started running from Royston, Wombwell, Grimethorpe, Cudsworth, &c., has already proved very popular.



Lady Duveen's Delaunay-Belleville with d'Ieteren limousine landaulette body.—The chassis is a 19-h.p. 6-cyl. model, with special steering lock for town work.



A well-finished interior of a Delaunay-Belleville landaulet.

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Annual Dinner of Sheffield A.C.

REPLYING to the toast of "The Sheffield A.C." at the annual dinner, held on Saturday last, the Hon. Secretary, Mr. F. B. Cawood, said that if the new Chief Constable would deal with motorists as fairly as they had been dealt with they would have no complaint against him. He hoped the traffic question would be tackled. Every man who had been on a motor car was satisfied that in nine cases out of ten when anything occurred it was the pedestrian who was to blame.

The Mayor of Rotherham (Ald. P. B. Coward), replying to the toast of "The Public Authorities," proposed by Mr. H. C. Else, said that judging from whisperings he heard the Road Board were devoting more attention to London and the South than to the developing districts of the North. Motorists ought to see that the money available was applied equally for the benefit of the northern and southern districts. If motorists were good fellows and did what was right on the public highway they had no need to fear.

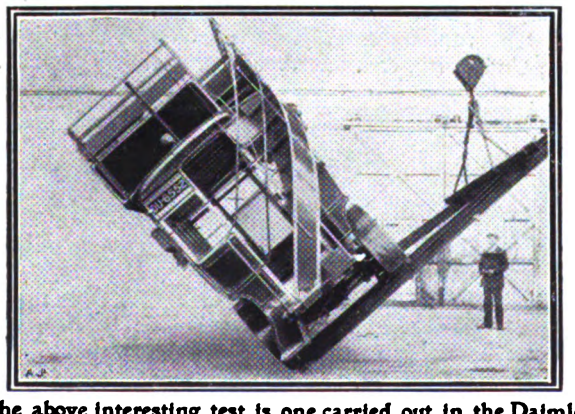
A conspicuous feature of this function was the small part which speechmaking took in it, a fact which was greatly appreciated by those who were present, as it gave longer time to enjoy the excellent musical programme.

The Storage of Carbide.

THE Glasgow Police display great keenness in seeing that the regulations regarding the storage of carbide are not ignored. There have been several prosecutions recently, and in one case a firm of motor and cycle dealers were charged with having 35½ lbs. in excess of the amount they were permitted to store. It is stated that the firm had permission to store 28 lbs., but the inspector on his visit found 63½ lbs. A penalty of £3 3s. was imposed.

Motors at the Ghent Exhibition.

MOTORISTS going to Ghent for the International Exhibition next year should find plenty to interest them as the various nations will have collective exhibits of motor cars. A point is being made that the cars must be entirely representative of one country so that it will not be possible to show a French body on a Belgian chassis, &c. Another attractive side of the Exhibition will be the aerodrome, where flying meetings will be held periodically.



The above interesting test is one carried out in the Daimler factory on the new Daimler 'buses in order to show that they are practically incapable of being overturned. When they are empty the limiting angle of the rear axle is 41°, while the body leans over on its springs so that the inclination is 2° more. When loaded on top only the limiting angle of the axle is 28° and the extra tilt of the body 3°. When fully loaded inside and outside the limiting angle of the axle is 35° and the extra tilt of the body 2°.

MOTOR CAR CONSTRUCTION.

"IN MOTOR CAR CONSTRUCTION" (Crosby Lockwood and Son), Mr. R. W. A. Brewer makes a rapid review of some of the chief departments of automobile engineering, and not the least interesting part of his work is that devoted to the historical *resumé* in the opening chapter.

"To Lenoir is due the credit of introducing an engine that was, comparatively speaking, of commercial utility. His engines were made and used for a variety of purposes in France. In 1860 the Lenoir patents were taken over in this country by J. Johnson, and a number of engines made and sold. The engine was like an ordinary steam engine, gas and air being admitted at atmospheric pressure, and ignited. . . . Million in 1861 and Beau de Rochas in 1862 investigated the effect of compression in gas engines; the latter gave the following conditions as essential in order to obtain economy:—

"1. Maximum cylinder volume with least possible radiating surface.

"2. Greatest possible rapidity of expansion.

"3. Greatest possible volume of expansion.

"4. Greatest possible pressure before ignition.

"This led him to suggest the following cycle of operations:—

"1. A suction stroke, drawing air and gas into the cylinder.

"2. A compression stroke compressing the mixture.

"3. Ignition at the end of the compression stroke and expansion during the third stroke.

"4. Exhaustion stroke, expelling the burnt gases from the cylinder.

"Otto employed this cycle in his second engine with great success . . . . (in 1876) . . . . Messrs. Crossley Bros. manufactured engines under the Otto patent for twenty-one years, during which time, until the patents expired, no great improvements were made in the design, excepting the introduction of an improved hot tube ignition . . . . Electric ignition was first applied successfully by Lenoir. He used a battery, induction coil, distributor and sparking plug. Troubles due to insulation difficulties and failure to spark due to moisture on the sparking points, caused this method to be given up in favour of flame or hot tube ignition. . . .

"The want of frequency of impulse in the Otto cycle causes large engines working on this cycle to become heavy and cumbersome. In order to increase the frequency of impulse and thus get more power for a given weight of engine, Mr. Dugald Clerk in the year 1878 introduced a two-cycle engine working on what is known as the Clerk cycle."

In other parts of his book, Mr. Brewer speaks of various processes that occur in the workshop during the construction of modern cars. Here and there he touches upon design, and naturally a considerable section is devoted to carburettors, in which subject the author is particularly interested.

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PUBLICATIONS RECEIVED.

A Primer of the Internal-Combustion Engine. By H. E. Wimperis, M.A. (Cantab). London: Constable and Co., Ltd. Price 2s. 6d. net.

Rules of Golf. Liverpool: The Royal Insurance Co., Ltd.

Catalogues.

Facsimile Reproduction of the National Physical Laboratory's Report on Daimler-Lanchester Worm Gears. The Daimler Co., Ltd., Coventry.

"K.E.W." Magnetos. J. A. Ryley, Martineau Street, Birmingham.

The Napier Book. S. F. Edge, Ltd., 14, New Burlington Street, Regent Street, W.

Sheffield-Simplex British-Built Six-Cylinder Car, "1913" Season. The Sheffield-Simplex Motor Works, Ltd., Tinsley, Sheffield.

Wolseley Autocars, 1913. The Wolseley Tool and Motor Car Co., Ltd., Adderley Park, Birmingham.

"Enots" Accessories for the Motoring and Allied Trades. Benton and Stone, Ltd., Bracebridge Street, Birmingham.

Metallurgique Cars: 1913 *Models.*—Metallurgique, Ltd., 110, High Street, Manchester Square, London, W.

"Matchless" Motor Cycles, 1913.—H. Collier and Sons, Ltd., 44, Plumstead Road, Plumstead, S.E.

The "Matchless" Cycle Car: Season, 1913.—H. Collier and Sons, Ltd., 44, Plumstead Road, Plumstead, S.E.

Austin Cars: Carriage Department.—The Austin Motor Co., Ltd., Longbridge, Northfield, Birmingham.

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COMPANY DOINGS.

De Dion Bouton (1907), Ltd.

AT the sixth ordinary general meeting of the above company held last week, Mr. W. Scott-Leefe, the Chairman, referred to the annual report, summarised in our issue of the 7th inst., which showed that the profit for the year was £11,500, which with the £3,318 brought forward made a total of £14,000 to be dealt with. Having explained several other points, the Chairman went on to say that the company had eight new models for 1913, and the chassis ranged in price from £175 to £650 and in power from 7-h.p. twin-cylinder to the 50-h.p. eight-cylinder. One of the most satisfactory features of their present business was the growing popularity of their higher powered cars. Last year they delivered twice as many cars from 18-h.p. to 26-h.p. than in any previous year. Moreover, the silence of the modern De Dion Bouton car of high power rendered it ideal for social purposes. They had now in hand nearly twice as many orders for the 18-h.p. model as they had last year at this time, and of the 26-h.p. eight-cylinder car they easily sold all the manufacturers could deliver to them, and they could have sold twice or three times as many if they could have got them in time. Their most successful model last year was the 12-h.p. 4-cyl., which, as a matter of fact, was sold out long before the end of the season. In view of its popularity, they had made arrangements with the manufacturers which should enable them to deliver a lot of those cars this year. As he had told them on previous occasions, they had on their books, as owners of their cars, over a thousand doctors, and it was scarcely necessary for him at that time of day to point the moral of that. The directors were carefully watching developments in connection with commercial vehicles, and they were securing an increasing proportion of that trade. On the motion of the Chairman, seconded by Mr. Kenneth Brown, the report and accounts were adopted unanimously. In moving the re-election of Mr. Sidney Van den Bergh as a director of the company, the Chairman stated that Mr. Van den Bergh was associated with one of the largest and most successful businesses in the world, and his knowledge and financial ability was of great assistance to the board. This resolution was unanimously carried.

A. Darracq and Co. (1905).

PRESIDING on Monday at the ordinary annual meeting, Mr. J. S. Smith-Winby said that they had had an exceedingly difficult and unsatisfactory year, all the more disappointing because of its early promise. The results were due to causes of an exceptional nature which were unlikely to recur. The financial position was thoroughly sound. Profit and loss account showed £3,362; as the result of the year's trading apart from interest on investments and other receipts, £11,390; and they had withdrawn £50,000 from the reserve profits to provide for the preference dividend, the interim dividend on the ordinary shares, and a heavy claim for income tax against which they had appealed. The causes of the small profit were a greatly reduced output coupled with a considerably increased amount of unproductive work. The whole trouble originated in the difficulties experienced in manufacture arising out of the adoption of the valveless form of motor. Manufacture upon a large scale had created problems with which it was necessary to deal, and delay after delay occurred, with the result that the turnover for the year was largely reduced, many orders were cancelled through lateness of delivery, and virtually the expenditure was the same as if the production had been normal.

The Chairman then described changes of personnel which had been effected at the works, including the appointment of Mr. W. B. Hopkins to take charge of the general administration in Paris, and of Mr. Owen Clegg, formerly of Coventry, to assume management of the works. Unless the board were entirely mistaken, the worst of the crisis was over. The affairs of the company were taking a distinct turn for the better and would, he believed, gradually be re-established on a satisfactory footing. In the course of subsequent discussion, Mr. Steele suggested the appointment of a committee consisting of Mr. J. S. Harmood Banner, M.P., Mr. Norman Craig, K.C., M.P., Mr. R. Leicester Harmsworth, M.P., Mr. C. S. Cockburn, J.P., and himself. The Chairman moved the adjournment of the meeting and expressed the willingness of the board to meet these gentlemen.

NEW COMPANIES REGISTERED.

Private Companies

Fred Burr and Co., Ltd.—Capital £10,000, in £1 shares (3,000 5 per cent. cum. pref.). Acquiring business of an engineer, motor car, cycle, and accessory manufacturer and dealer, &c., carried on by F. Scott at Middlesbrough as Fred Burr and Co.

Motorists' Stores, Ltd., 16 and 17, Devonshire Square, E.C.—Capital £100, in 2s. shares. First directors, J. Paxton Clarkson and St. J. Bennett.

Warne and Co., Ltd.—Capital £4,000, in £1 shares. Motor car and cycle manufacturers, &c.

A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Office Holiday Arrangements.—The headquarters at Fanum House will be closed on Christmas Day, but a small staff will be in attendance on Boxing Day to deal with urgent matters and to answer important enquiries by members.

Important Notice of Removal.—Will members kindly note that the offices at Caxton House, Westminster, are being closed, and that the Cash, Engineering, and other departments hitherto carried on at this address have been moved to 7 and 8, New Coventry Street, W. (next door to Fanum House), where a commodious suite of offices has been secured as an extension of Fanum House Headquarters.

Shipping Cycle Cars.—The Association is endeavouring to induce shipping companies to institute reduced rates for the transport of cycle cars, and success has already attended its efforts. The General Steam Navigation Co. have issued a revised tariff showing a large reduction on previous rates, which fixed a minimum of £4 12s. on all cars or cycle cars weighing under 10 cwts. Particulars of the new schedule, which is graduated to suit cars weighing from 6 cwts. upwards, may be had by members upon application to the Touring Department.

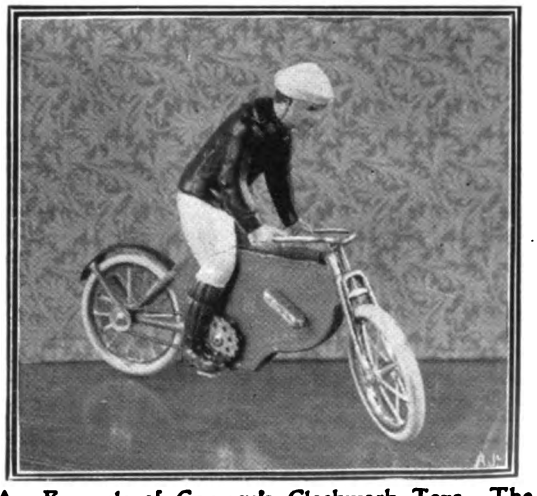
Uncut hedges.—A member recently informed the Association that several accidents had occurred on the high road between Gloucester, Tewkesbury and Cheltenham, through the presence of a very high hedge at Coombe Hill. Upon this complaint being forwarded to the local authorities the County Surveyor served a notice upon the owner of the land to cut the hedges. In addition he has also erected County Council notice boards on each side of the Hill, which should greatly assist in preventing further accidents at this spot.

Passing tramcars in Aberdeen.—A member's chauffeur has just been fined £3 3s. for passing a tramcar on the right side at Aberdeen, the Sheriff having decided that it is illegal in Scotland for any vehicle travelling in the same direction as a tramcar to pass it on the "off" or right-hand side. Members are therefore recommended to keep this decision in mind when motoring in Scottish towns and cities, if they would avoid prosecutions and fines.

ROUNDABOUT NOTES.

IN connection with the wonderful speed performance of the 25-h.p. Talbot cars during the Brooklands Show week, Messrs. Clement-Talbot have just issued an interesting brochure which gives some details of the performance, as well as an abridged specification of the car which, it will be remembered, was standard. Any of our readers can obtain a copy by sending a postcard to Messrs. Clement-Talbot, Barlby Road, Ladbroke Grove, London, W.

ON a 15-h.p. Colonial Napier, the President of the Tasmanian A.C. recently won the Club Trial, in the awards for which the marks for hill-climbing and reliability played a most important part.



An Example of Gamage's Clockwork Toys.—The motor cyclist. This little manikin runs 8 to 10 times round a 10-ft. circle at one winding and on two wheels only.

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A FOREIGN correspondent, referring to the Argyll sleeve-valve engine, speaks of the fear and trembling with which his native driver handled the new invention. Unlike any previous experience, the engine had a sensation peculiarly its own, the man feeling sure that it was "possessed." The first sensations over, the mechanism became so fascinating that the driver was with difficulty induced to leave his vehicle day or night.

MESSRS. SIDLEY AND WALLACE, of Grantham House, Grange Road, Lewes, have been appointed De Dion Bouton sole agents for Sussex, and will be glad to hear from De Dion Bouton owners in their territory, or to demonstrate the De Dion 1913 models to anybody interested. Mr. H. W. Sidley was for over eight years a member of the De Dion Bouton staff at the Great Marlborough Street depôt, and thus enjoys a period of acquaintance with the cars he will be handling none too common among agents.

MESSRS. A. W. GAMAGE, LTD., are to be congratulated on their appointment as Sports and Athletic Outfitters to Her Majesty the Queen.

GAULOIS tyres are to the front at the Paris Salon and MM. Bergougnan et Cie report that these tyres are continuing to gain in favour on the Continent. The firm claim to be the largest makers of solid tyres and cycle tyres in France.

IT is gratifying testimony to the merit of the Kempshall tyre that the Triumph Co. have given instructions to their depôts to recommend Kempshall tyres to any rider wishing to order a stronger or heavier tyre than that fitted as standard pattern.

MR. G. HUBERT WOODS, of Crossley Motors, Ltd., reports two Crossley wins from New South Wales. In a petrol consumption test organised by the N.S.W. Motor Traders' Association a 15-h.p. Crossley was first, while in a hill-climb at Sydney the 15-h.p. Crossley was first on formula.

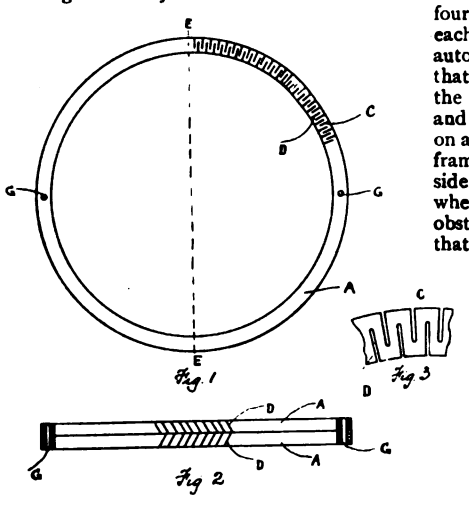
GENERALLY speaking, it is safe to say that only the best of everything is fitted to Royal motor cars. Among those using C.A.V. lighting system are: His Majesty King George V, the King of Spain, the Queen of Holland and the Tzar of Russia. The chief claims for the C.A.V. system are that it is simple, safe and certain.

BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

22,622. April 13th, 1912. Improvements in Spur Transmission Gearing. P. A. Poppe, Drake Street, Lockhurst Lane, Coventry.—This invention relates to spur transmission gearing in which the teeth are formed separate from the wheel on links pivoted together in the manner of a chain, and in which two or more adjacent bands of links encircle the wheel and are prevented from rotating relatively thereto. It is claimed



that this construction, while of great convenience, cheapness and simplicity, has the advantage of building up into a strong, solid aggregate free from hollows. Fig. 1 is a side elevation of a wheel with a few teeth applied. Fig. 2 is a part sectional end view. Fig. 3 shows a toothed link in side elevation. Fig. 8 is a side elevation showing part of a finished wheel meshing with another gear wheel. In the construction of Fig. 1, the wheel blank, A, is provided with upstanding tongue portions, B. As shown in Fig. 2, these are not all arranged in the same plane, but alternate. Only four are shown at C, whilst at D there are five. The teeth may be arranged in sets of four as in Fig. 3, which form links, E, the underside, F, of which is curved to fit the periphery of the blank, A, whilst the corners, G, are adapted to abut up against the tongue portions as shown in Fig. 3. The links, E, break joint as will be seen most clearly in Fig. 8. When in position they are joined together by rivets, H.—November 27th, 1912.

25,420. November 15th, 1911. Improvements in or in and relating to Means of Supporting Frames of Automobiles from the Road Wheels. The Wolseley Tool and Motor Car Co., Ltd., and A. A. Remington, Adderley Park, Birmingham. When an automobile is supported from the wheels in the ordinary manner, through the medium of four semi-elliptic springs, two in respect of each axle, the first effect of one side of the automobile passing over an obstruction is that the front wheel of such side rises, tilting the front portion of the frame at such side, and thereby causing an alteration of the load on all the wheels, and tending to distort the frame upwards at the front corner of such side. The subsequent rising of the rear wheel at the same side, as it passes over an obstacle, produces a corresponding effect to that above described as to the loading of the

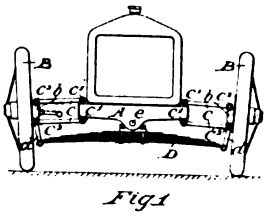


Fig 1

wheels, and tends to distort the frame upwards at the rear corner of such side. There is a tendency, therefore, to distort the frame and bodywork, and thereby cause strains and noises in the body, and to produce skew-wise movements to the discomfort of the passengers; and all this is found to occur in practice. In this invention the frame is supported from the front road wheels through the medium of a pivot connection with a transverse member which is supported by the wheels, the pivot axis lying horizontally in the vertical mid-plane of the automobile, whereby the forward end of the frame can turn about such pivot axis without substantially affecting the load upon the wheels. Fig. 1 is a front elevation showing means of supporting the forward end of the frame from the front road wheels. Fig. 2 is a sectional side elevation. A transverse spring, A, is pivoted at one end, *a*, to a bracket which is fixed upon the front axle, B, and this spring is connected at its other end, by means of a link, *c*, with a lug, *d*, of the axle. The frame, D, is pivotally connected with the middle of the spring, A, as shown, by means of a pivot pin, *e*. Radius bars, F, connect between brackets, *f*, of the frame and brackets, f^1, of the axle, to prevent either end of the axle from advancing in relation to the other.—November 27th, 1911.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published December 19th, 1912.

26,166. ELECTROMOTOR EQUIPMENT CO. AND T. MEACOCK. Friction clutches.
26,298. J. TAYLOR. Device for indicating turning of cars.
26,322. C. B. REDRUP AND J. R. M. STANFIELD. I.C. engines.
26,538. H. C. MCBRAIR. Variable-speed transmission gear.
26,637. WILLANS AND ROBINSON, LTD., AND K. W. WILLANS. Valve gear.
26,973. S. A. HORSTMANN AND C. A. LISTER. Resilient wheels.
27,561. A. E. TERRY. Shock absorbers.
28,062. W. RADFORD. Chain transmission gear.
28,741. C. R. GARRARD. I.C. engines.
29,204. C. E. SMITH. Clutch mechanisms.
29,274. W. E. COPITHORN AND H. M. FERGUSON. Demountable rims.

Applied for in 1912.

Published December 12th, 1912.

338. A. POTDEVIN. I.C. engines.
425. L. S. HACKNEY. Motor plough.
1,111. E. L. BARRY. Rotary engines.
1,508. T. S. MARSHALL. I.C. engines.
2,225. H. DUNCAN AND S. ELION. Speed indicators.
6,277. J. E. SEARS. Valves.
7,143. A. TURNBULL. Emergency tyres, rims or wheels.
7,785. E. U. G. REAGAN. Combined clutch and engine starter.
9,973. C. AND E. HOADLEY. Motor vehicles.
10,258. GEB. KORTING A.-G. Cylinder heads.
10,306. H. CLARKE. Exhaust silencers.
11,463. V. E. AND R. G. NELSON. I.C. engines.
12,115. W. W. HAMILL. Fuel-spraying.
15,062. J. J. G. PAUILHAC. Shock absorbers.
17,531. W. H. MOORE AND AMBROSE SHARDLOW AND CO. Starting-gear.
22,992. — WAGNER. Explosion motors.

Published December 19th, 1912.

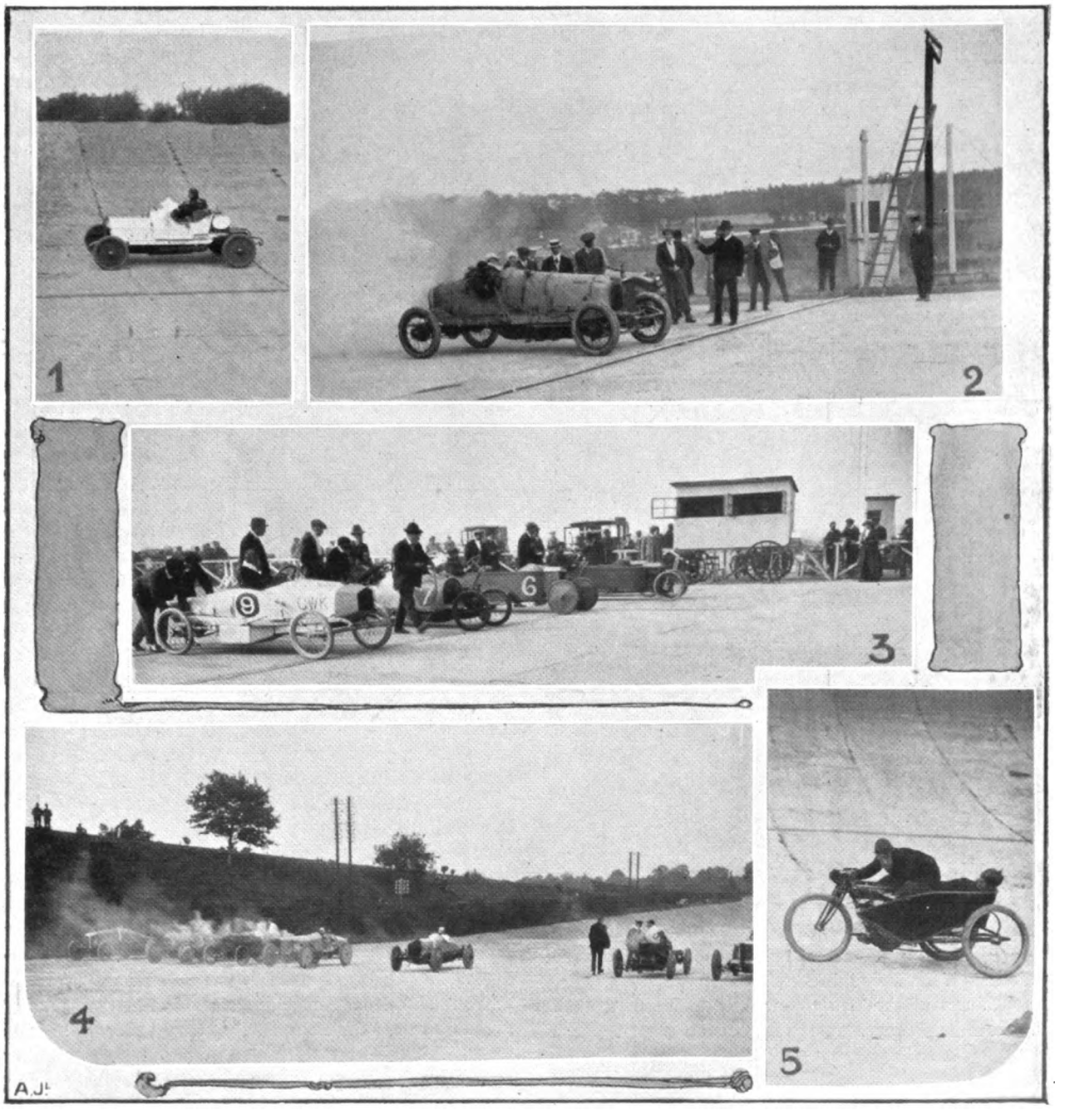
2,751. SCHWEINFURTER PRACISIONS-KUGEL-LAGER-WERKE FICHTEL AND SACHS. Variable-speed gear.
4,297. B. F. AUGUSTINE. Rotary gas engines.
4,861. P. A. POPPE. Multi-cylinder I.C. engines.
7,751. L. BROWN AND CHAS. MACINTOSH AND CO. Solid rubber tyres.
9,216. SOC. ANON. DES AUTOMOBILES ET CYCLES PEUGEOT. Shock absorbers.
9,310. L. J. MONOHAN. Valve mechanism.
11,919. P. JANZON. Change-speed gear.
17,292. H. BRIONME. Safety petrol tanks.
20,105. T. FOSTER. Variable gear.

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The AUTO
-MOTOR JOURNAL

The Motorist's Journal and Directory.

No. 625. (No. 52, Vol. XVII.)] DECEMBER 28, 1912. [Weekly, Price 3d. Post Free, 3½d.



SOME REMINISCENCES OF 1912.—1. "Star" record breaking. 2. D. Resta starting on Sunbeam 50-mile record. 3. Start for one-hour cyclecar race. 4. Start for the O'Gorman Trophy. 5. Rudge machine (with passenger) at 46 m.p.h.

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The AUTO MOTOR JOURNAL (YELLOW COVER).

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Contributions.

Articles on touring and technology, also communications of general interest to motorists are especially invited from the Colonies.
Photographs of beauty, interest or curiosity are also desired from all parts of the Kingdom and overseas.
All letters should be addressed to the Editor.

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Small corrections can be accepted up to 6 p.m. on Tuesday.
All communications must be addressed to the Manager.

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1912.
THE YEAR IN RETROSPECT.

WHEW! How the years fly past, even like the milestones on the open road! It seems but a matter of weeks since we sat down to pen our retrospect of 1911, and here we are once again at the end of yet another year, and the same duty of reviewing in brief detail the doings and characteristics of the dying year falls to be done as of old. Like its predecessor, 1912 has been a year which cannot be classed as a great year in the annals of automobilism, but it has nevertheless been a notable one. It is passing strange how these things work out. Everybody is agreed that the great movement with which and with whose interests this journal is so closely identified, has settled down into a more or less settled position among the things that go to make up the conditions of civilised life. Automobilism, in a word, has become a simple matter of course, and yet how much can happen in connection with this simple commonplace. Like everything else, automobilism in the mass is made up of a whole series of interests, and an infinite amount of detail, each separate part of which has its own distinct bearing on the whole, and although the casual observer may almost be forgiven for thinking that there is literally nothing happening from day to day, it amounts to this, that when we take up our pen to set down all that we conceive to be worthy of passing mention in such a review as this, the trouble is not that there is nothing to write of, but that the enormous mass of detail before us needs careful sifting lest something essential should be forgotten. Things apparently unnoticed at the time of happening are found when viewed through the glass of retrospect to have a most important bearing on the progress and development of the movement. Other matters, which may have seemed to have been of supreme importance eight or nine months ago, are seen now to have been almost negligible in their effect—and so the process of selection goes on.

In the politics of the movement, so far as this country is concerned, the most notable happening of the year has undoubtedly been the institution of the Touring Guides scheme by the General Committee of the R.A.C. and Associated Clubs. We have never hesitated to express the opinion that in this the General Committee was absolutely within their rights and, though the question became one of acute controversy, time and the working of the scheme have shown us to have been right in our conclusions. The effect produced on the relations between the General Committee and the Automobile Association was, at the time, an unfortunate one, and it looked as though a permanent estrangement would result. However, we are pleased to record that time has apparently smoothed away much of the bad feeling which was engendered, largely as a result of a grave mistake in tactics by the A.A. That has been lived down now—at least apparently—and we are glad to be able to record that the close of the year sees the relations between the two bodies better than they have ever been.

At this time last year it fell to us to record the progress that had been made in the formation of a suggested National Council of Automobilism and to express regret that although such a body had been formed the A.A. had not seen its way to fit in with the idea and therefore stood aloof. At that time negotiations were in active progress between the R.A.C. and the A.A. with the object of arriving at some *modus vivendi* which would make the National Council of real effect in the affairs of automobilism. Unfortunately, we have to record the fact that these negotiations proved abortive and we are thus no farther on in the matter than we were a year ago. Happily, however, the great associations have been able

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to work together amicably in several important directions and, so long as this state of things continues to exist, and we have a National Council in effect even if not in name, the failure of the two to agree on points of detail is not as serious as might be.

The question that has been in everyone's mind during the latter part of the year is that of the ever increasing price of petrol. The first large increase in price happened as a result of the strike among the London transport workers in July. It was alleged that the strike rendered it extremely difficult to move supplies up from Thames Haven to London, and the motorist suffered all the consequences of temporary famine in his fuel supplies. Dealers charged whatever they liked, and as much as half-a-crown a gallon was demanded in the Metropolitan area, while prices went up in sympathy all over the country. Petrol prices nowadays seem like taxes—once they go up they remain up, and the motorist is paying more for his fuel now than he has ever done in the history of the movement, with every prospect of paying even more in the immediate future. The first result of this upward tendency in prices was to bring about the formation of a Petrol Committee, the initiative being taken by the R.A.C., composed of representatives of all the larger motoring bodies. This body met at the R.A.C. during the latter part of the summer, and has issued an interim report of a very disquieting nature. From the mass of evidence at its disposal, the Committee has arrived at the conclusion that there is not the slightest hope of any substantial reduction in the price of petrol. So far from that, prices must inevitably rise in consequence of the increasing demand for motor fuel, and the methods of the Trusts which control the supplies. The Petrol Committee, feeling that the only way out of the *impasse* is the development of a home source of supply, recommend that the R.A.C. should hold trials of fuels alternative to petrol, and the Club has promptly acceded to the request. The Society of Motor Manufacturers and Traders has manifested its interest in the question in no uncertain manner by voting the handsome sum of two thousand guineas to be applied to the purposes of these trials, while other lesser sums have been subscribed in other quarters. At the moment no details are available of how the Club proposes to proceed, but it is intended to issue regulations almost immediately, and to hold the tests at the earliest possible date.

Once again we have to regretfully record that practically nothing has been done with regard to the better regulation of London traffic. Of talk there has been enough and to spare, but of active work we have seen none worth recording. Although, in this connection, we think we are fairly safe in saying that general prejudice against the motor vehicle is practically dead, it is still nevertheless a fact that in the consideration of traffic problems the average person, be he official or simply man in the street, almost inevitably regards the word traffic as meaning motor traffic alone. Thus it comes about that during the year there has been almost endless discussion of the state of chaos existing in regard to the London traffic; all the blame has been laid at the door of the motor vehicle. Much has been made of the number of accidents caused by motor omnibuses. Questions almost without number have been asked in Parliament relating to these accidents, but never once have we noted a request for the returns of accidents caused by other forms of traffic. Insistent demands have been made for legislation to deal with the evergrowing volume of motor traffic, but nothing has been authoritatively suggested in the way of general legislation conferring powers to deal with the *whole* of the traffic. From time to time during the year we have dealt with the question in these columns, and have done our best to insist that detached effort is worse than useless, and that what is wanted is a comprehensive scheme for the constitution of a real Traffic Board to deal with the matter as a whole, even to the regulation of pedestrian traffic. At the present moment a Select Committee of the House of Commons is sitting to enquire into the matter of motor omnibus traffic, and the accidents caused by it, but we do not anticipate any more tangible results from its work than have accrued from the labours of similar bodies in past years.

For a time the action of the police in certain parts of London in insisting on slow-moving vehicles keeping to the left-hand side of the road seemed to be producing some slight effect in relieving the congestion. Apparently, however, the police have ceased to trouble themselves about it any further, for things have relapsed into their former state, and it has become more and more apparent that no good will be done until the traffic system of London has undergone drastic revision at the hands of Parliament.

Bound up in this question of the traffic, the year has seen an enormous growth in the number of public service motor vehicles plying for hire in London, this being particularly the case with regard to the motor omnibus. Arising out of this, there has been aroused a tremendous agitation against these vehicles, principally fostered by the champions of the L.C.C. tramways, who can see their pet schemes being rapidly run off the roads by the competition of a better and more elastic form of vehicle. Up to the present, they do not appear to have made much progress in their crusade, for the number of motor omnibuses in commission increases every week, while there is a corresponding decrease in the receipts of the tramways. In spite of this, the L.C.C. persists in attempts to extend its system and in its efforts to sink yet more public money in an apparently hopeless enterprise. More or less associated with this agitation, the year has seen a vigorous series of protests made by local highway authorities against the damage caused to the roads under their control by heavy motor traffic. During the course of the controversy, we have expressed the opinion that there is a great deal of justice in their complaints, and it is significant that the Road Board appears to agree, inasmuch as it has recently caused it to be known that it is willing to make grants and loans from its funds for the purpose of making good the damage caused by abnormally heavy traffic. In at least one case,

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such a grant in aid has been made, so that it is possible this question of putting the local highways in a fit state to carry modern heavy traffic will find an automatic level.

Touching for a moment on the general work of the Road Board, we can only repeat what we said on the same subject last year. It has fully justified its formation. The year 1911 was very largely occupied by the personnel of the Board in getting things into proper shape for the commencement of the real work allocated to it, but 1912 has been a year of almost purely routine work—the granting of loans or grants in aid of road reconstruction or improvement. Much good work has been accomplished, and even at this early stage of the Board's existence it is possible to see on our main highways the result of its efforts. Not only has the Board done good work of its own, but the reflex of its existence is observable in the generally better methods of road-making and maintenance which its advice and influence have brought into being. Naturally, the Board has not escaped without criticism. It has been accused of hoarding its funds instead of spending them for the good of the roads, but this accusation has, we think, been satisfactorily disposed of and the Board given due credit for its work. One scheme of the Road Board which brought a great deal of adverse criticism to bear upon it was that for the construction of a new western approach road to London. At the time of writing it is difficult to say precisely what shape the scheme will ultimately take, even if it is destined to materialise at all within a measureable period of time, and as we have at various times during the year discussed the merits of each alternative scheme and passed opinions upon them, there is no need to do anything more than to record the facts as they exist.

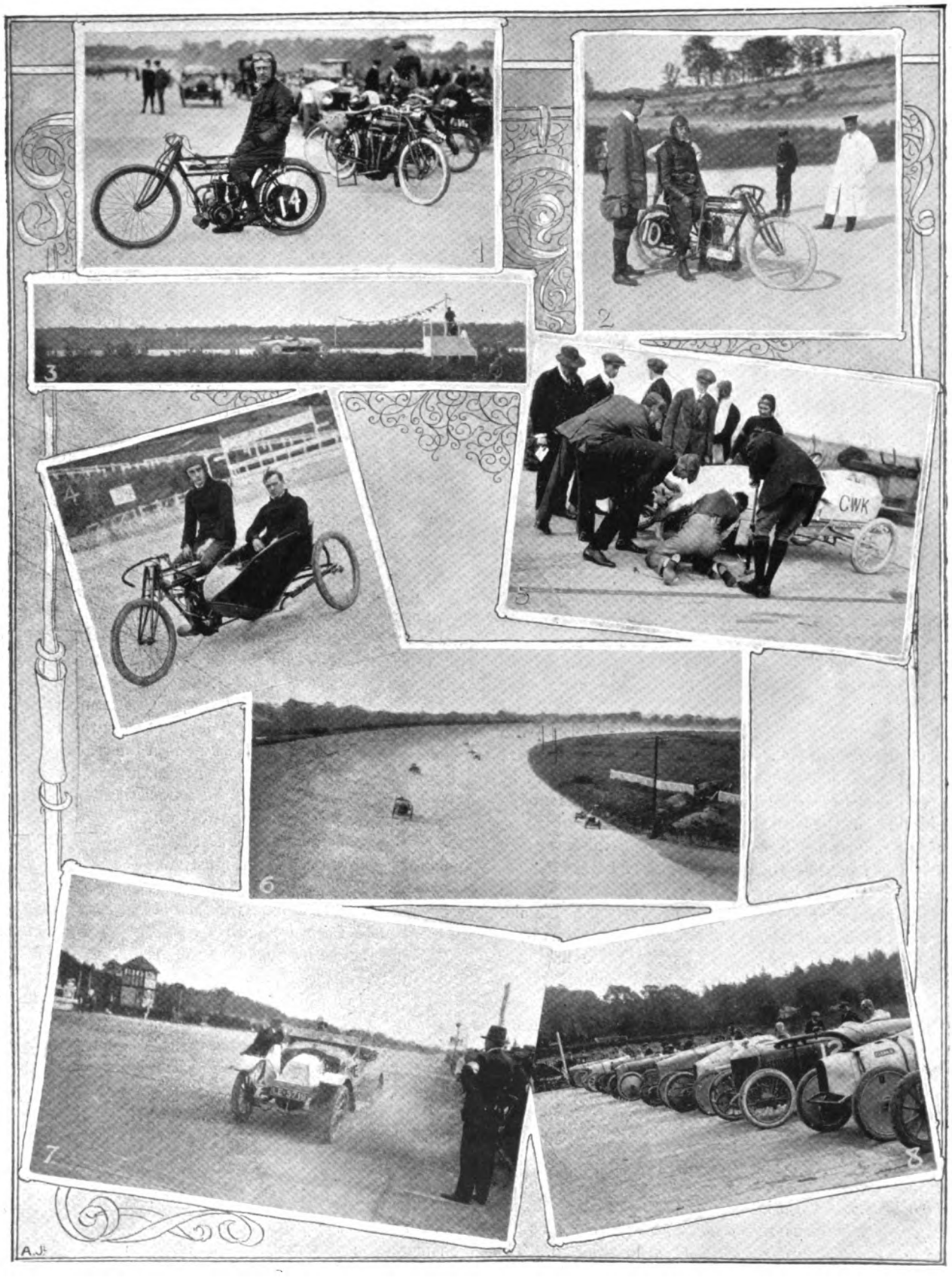
For our own part, in this matter of the Road Board, we look upon the Board as being merely in the nature of a temporary body, with far too restricted administrative powers, which is simply the forerunner of a much more effective organisation controlling our whole highway system. That we must ultimately come to this, no student of the highway problem can doubt, but we cannot say that the year which has elapsed since last we dealt at large with the subject has brought us measurably nearer to this desirable consummation. Parliament has been far too busy with contentious measures during the year for the administration to spare even a passing thought to the crying necessity for the reform of our highway and traffic systems.

Coming now to the motorist in Parliament, he has been the subject of many desultory questions, but of legislation there has been none, save the passing of the Motor Taxation clauses of the Finance Act, which, needless to say, leave him precisely where he was at this time last year. A twelvemonth ago there seemed to be a very strong possibility that there would be far-reaching motor legislation brought before the Houses of Parliament during 1912. That promise has not been fulfilled in any one of its details. In the summer of 1911 the President of the Local Government Board promised a deputation that some of the anomalies of the Motor Car Acts, particularly the one relating to endorsements, should be removed at an early date. Nothing, however, has been done in this direction, and we are bound to say that the outlook for 1913 does not look any more hopeful. The private Bill, to which we made reference a year ago, the object of which was to suppress motor noises at night, has not been heard of during the year, though action along the principal lines suggested has been taken by the Local Government Board in the shape of an Order prohibiting the use of the open exhaust. So far, this Order does not apply to the motor cycle, but a recent addition to its texts brings the motor cycle within the scope of the Order as from March 31st next. We are much inclined to the view that in being saddled with this prohibition, which is not at all an irksome one, save to an inconsiderable minority, we have got off fairly lightly, for had the Local Government Board not discovered that it had the necessary powers to make this prohibitory Order, there is little doubt but that time would have been found to rush the Bill already referred to through the two Houses.

Then, a year ago it was stated that the Automobile Association was engaged upon the draft of a Bill amending the Motor Car Acts, which was to have been introduced during 1912. Early in the year, however, it was also announced that the R.A.C. proposed to submit its own ideas of motor legislation to Parliament through the medium of a private Bill, so that all round the year opened with promise of lively times in Parliament for the motorist. Later, and much to the satisfaction of all who have the solidarity of the movement at heart, it was given out that the two bodies concerned had agreed to collaborate upon the production of a joint set of legislative proposals. However, nothing more has been heard on the subject, and we can only suppose that they are awaiting a more convenient season for the submission of their proposals. In the meantime, existing legislation has been continued under the Expiring Laws Continuance Act, so that we stand precisely where we did a year ago—a state of things which we cannot but regard as being all to the good, because the longer fresh legislation is delayed, the more favourable it is likely to be in the end.

During the year we have heard much of the provincial clubs and their relations with the parent body. Until the latter end of the year we had thought that these were of the happiest description, but during the past few weeks reports of disaffection in several quarters have reached us. These we have dealt with extensively in our editorial columns, and there is thus nothing left for us to do but to express the hope that better counsels will prevail among that small minority which is openly advocating a split. For anything of the kind to happen would be a far more serious matter than the malcontents perhaps realise, and would deal a blow at the comity of automobilism which might well set the clock back five years and would certainly recoil on themselves with sledge-hammer force. In the main, the clubs maintain a healthy vitality, thanks, we sincerely believe, to their association

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REMINISCENCES OF 1912.—1. G. E. Stanley on Singer. 2. P. Weatherlit on the Zenith, winner of Seventh Long Motor Cycle Handicap. 3. June Private Competitors' Handicap (hard struggle for third place). 4. Stanley Spencer and passenger (Woodman), Rudge record machine. 5. October One-Hour Cyclecar Race. New tyre being fitted to winner, Mr. J. T. Wood's G.W.K. 6. Race for the Fifth 70-Mile Short Handicap, from the Byfleet bridge. 7. Relay Race, R.A.C. Meet. O. D. Pollak on the 15·9-h.p. Scar. 8. Start for the September Private Competitors' Handicap.

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with the parent body. It cannot be denied that some of them are passing through an anxious time, but then it has been said for a long time now that the days of usefulness of the local club are past, and we would remind the anxious ones of the proverb which assures us that threatened men live long.

In winding up this necessarily brief review of the general aspects of the year's work in automobilism, we would once again refer to the excellent work being accomplished by the Roads Improvement Association. The record of progress to which we called attention last year has been well maintained, many new centres have been called into being, and it is a pleasing feature of the work of the Association that it appears to be in a fair way to achieve what no other body of its kind has ever succeeded in doing yet, the reconciliation of all the road using interests. From the reports of its work that have reached us from time to time, we note with satisfaction that the Association appears to be working hand in hand with the horse-owning and cycling organisations, and to be bringing them round to the view that the good road is equally as desirable to them as to the motorist. As an auxiliary to the Road Board, in the way that its principal duty is to call the attention of the responsible authority to cases of flagrantly bad roads, it has a distinct niche among the community of road-users' organisations.

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General Progress.

Once more it is possible to sum up the whole situation in these two words. Indeed, it would be almost difficult to find a short phrase which more adequately described the forward movement of the year. Year by year the great cause of automobilism moves forward, gathering bulk as it goes like the snowball which is so often used as an apt illustration of the growth of any movement which is showing progress. In many respects we think we are justified in regarding 1912 as a species of golden year of automobilism. In every way automobilism has gone steadily forward and without a single check. Again, there has been no boom in the industry, but it has been generally the best twelve months the trade has ever experienced. In great measure this has doubtless been due to the generally excellent state of the country's trade, which is now passing through a period of almost unparalleled prosperity. Everyone seems to have money to spare, and that means that more is of necessity spent on the luxuries of life. At the same time, we are not altogether certain that we are within the rights of the case in thus referring to the motor car as a luxury. More than ever it has become one of the simple necessities of that class of the community which travels either on business or in pursuit of pleasure, and the car is thus regarded more and more as the one and only means of convenient locomotion. The consequence of this is, that while there is no boom in trade there is something which is far better—a steady expansion of business, which, barring political upheavals or something equally unforeseen, looks like being permanent. We do not believe that automobilism has progressed even yet beyond the elementary stages of its ultimate development. There still remains an enormous field for the motor vehicle, a field which is now almost a virgin ground, and rapid as has been its expansion during recent years, the progress of the next decade will dwarf it into comparative insignificance.

To say that the movement has progressed hand in hand with mechanical development is to state an obvious truism, but we think that the very marked increase in the number of recruits to the movement during the past year is due not so much to the greater realisation of the state of comparative perfection of the car as to the reasons we have set forth above. It has not needed the lessons of 1912 to impress upon the non-motoring public the extreme reliability of the modern car. That was accepted before the dawn of the year; what is happening now is simply the fruition of the seed of example. Jones sees that Smith's capacity for work is increased by the greater facility the car affords him for getting about his business, and buys a car. Then Brown begins to realise the same thing, and so it goes on. Add to this the fact that there is no want of ready money among the community, and the explanation of the growth of motoring is simple.

In connection with this growth of the movement, we have again to record our sense of regret that apparently the greater proportion of the recruits to automobilism do not think it worth while to throw in their lot with either of the associations which exist for the protection of the motorist. It is all very well to argue that membership is of no use; that the individual does not want to pay good money for the sake of being saluted on the roadside by a man in livery. We would point out, however, that the visible side of the activity of the associations is the least useful of all, and that it is the work which goes on behind the scenes which has the greatest bearing on the ultimate good of the movement. It must not be forgotten that we have not even yet got past the stage of special legislation, and that unless automobilism is prepared to show a bold front, we probably never shall be put on the same plane as any other road-using class of the community. At the present moment we are threatened with legislation which is to regulate the type of body we may fit to our cars; private Bills are constantly being presented to Parliament, many of them containing provisions which might easily prejudice important interests, and, unless we are a united and solid body, there is danger from all or any of these attempts at special legislation.

In our review of 1911, we took occasion to remark upon the success that had attended the efforts of American manufacturers to secure a share of the British market. This has been an even more marked characteristic of 1912. More American cars than ever have been sold in this country, and more Transatlantic marks, hitherto unknown on this side, have come into prominence. By way of evening things up, one or two of the more unsuitable Yankee cars—unsuitable, that is, to British roads and conditions—have disappeared, but the

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WITH THE CAMERA AND THE CAR.



In Constable's Country.....



FEN BRIDGE AND VALLEY FARM.—A celebrated Constable picture in real life, as recorded without embellishments by a Kodak camera.

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balance is well on the side of the American manufacturer. The increasing vogue of the American car has given rise to considerable anxiety in certain British trade circles, though, we are inclined to think, without adequate reason at the moment. Late in the "summer," of unhappy memory, a London daily paper took advantage of this sense of alarm to call a now historic meeting of the trade at the Ritz, at which the whole subject of the "American Invasion" was discussed, and remedies suggested. We are bound to say, however, that the only clear result of the meeting was the provision of a good deal of Tariff Reform argument for the columns of the journal in question, and later on in the year the mild sensation caused by the publication of a brilliantly clever lampoon of the meeting, the authorship of which is an open secret, published under the title of the "American Invasion." As we said in our review of last year, we say again, that we cannot see any real cause for apprehension. Our own factories are full up with orders, most of them are working overtime, and are even then behind with deliveries. That cannot last for ever, we know, but when the time comes for our own manufacturers to enter into competition with the very cheap car from abroad, we have every confidence that they will be found equal to the task. In the meantime, the cheap American car is doing good missionary work by making converts to automobilism.

Once again we have to record that the Olympia Show created yet more records. In fact, its very success causes more anxiety than a comparative failure would be likely to achieve. Over a quarter of a million people visited the Show during its eight days' duration, and most satisfactory business was done by practically the whole of the exhibitors. The main lesson of the Show, however, was that Olympia is now hopelessly inadequate for its purpose, and there is no question but that a remedy of some sort must be found to mitigate the overcrowding of Show week. The Paris Show has once more been held, and proved as successful as in past years, though the figures continue to show that London still holds its place as the centre of the European motoring interest, both from the commercial and the purely motoring point of view.

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The Year's Automobile Trade.

The story of the year's trade is one of steady expansion. From the official figures covering the eleven months ending on November 30th, we find that the value of cars, chassis, and parts imported showed an increase over the corresponding period of last year of no less than £1,125,774, as compared with an increase last year of £747,729. Exports for the same period increased by £412,349, which shows up poorly against the increase of £549,722 for 1911, and of £946,961 for 1910. It is only statistically, however, that the comparison suffers, because it is manifest that the reason underlying the smaller expansion of foreign and colonial trade is the greater prosperity of the home market, and its increased power of consumption as indicated by the import figures. A peculiar feature of the import figures is that the increase in the value of imported cars and chassis respectively is practically the same—£170,799 in the case of chassis, and £173,152 in respect of imported cars.

Taken on the whole, the figures are eloquent of a state of prosperity which is very flattering to the trade and the country equally.

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The Year in Competitions.

Whether it is that greater prosperity has induced the trade to look more kindly upon competitions than it did during the three bad years which ended in 1909, we do not pretend to say, but certain it is that 1912 has seen a very distinct revival of the languishing sport, and this in spite of almost uniformly wretched weather conditions during the whole of the season. Again, it was not attempted to revive the Scottish or Irish Trials, and, though there was some talk very early in the year of another effort being made to promote a race in the Isle of Man, it all came to nothing, and no serious move was made. The R.A.C. again organised a race at Brooklands for "Standard" cars, on a different basis from that of last year, the rating being increased from 15·9 to 20·1. The conditions were withheld until three weeks before the advertised date of the race—a policy which proved practically destructive of all interest, although well meant, for instead of the ample field which materialised in the 1911 race, there were but eight starters. The race fell to the 20·1 Singer, with a 15·9 Vinot second, after a wearisome race from which all the interest had evaporated during the early stages. The R.A.C. and Associated Clubs again held their "Gala Day" at Brooklands in July, and this proved distinctly more successful than the previous meeting, though several clubs which took part in the 1911 meeting abstained from fear of a similarly mismanaged affair. However, the entry list included one or two clubs which had not taken part before, and success was assured from that point of view. These meetings do much to promote the feeling of friendly rivalry between the clubs, and we hope to see them continued in future years.

In other directions the competition year was extraordinarily successful. The Aston hill-climb, which had disappeared from the fixture list from want of support, was again revived, and proved quite as successful as in its palmiest years. Shelsley Walsh hill-climb was again held and attracted a record entry, while the same may be said of another classic event, the Pateley Bridge hill-climb. Once more, too, the Yorkshire A.C. organised its annual speed trials at Saltburn Sands, and these proved as successful as ever.

Brooklands has had a most successful season, in spite of adverse weather conditions, and the racing has been a marked improvement upon that of previous years. This is in most part due to the far better handicapping that has been a feature of the season. In past years, Brooklands handicapping has been something like a by-word in racing circles, but the most severe of critics could have found no fault with it during the 1912 season. Excellent racing and close finishes have been the rule rather than

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the exception, and the result has been an increase in the interest, which had rather begun to flag.

On the Continent there have been great doings. The principal event of the year was the combined race for the French Grand Prix and the Coupe de *l'Auto*, the first being open to cars of unrestricted dimensions and the latter to the popular "three-litres" class. It is a matter of history that the latter event was won by the Sunbeam team, which finished first, second and third; scoring the first classic win by a British car since S. F. Edge won the Gordon-Bennett race in 1902. It was a veritable triumph for the Sunbeam, and happening as it did early in the season was no doubt responsible in some measure for the increased interest manifested in automobile sport on this side of the Channel. The Grand Prix for "unlimited" cars was won by the Peugeot firm, after a magnificent race.

* * *

Public Service Developments. The year has been a somewhat mixed one for investors in public service vehicle concerns. Those whose money has been put into the London motor 'bus companies have good cause to congratulate themselves, for this form of traction has veritably captured the passenger-carrying business of the metropolis. Fleets have been enormously increased during the year, while the numbers of passengers carried have gone up by leaps and bounds, and from a doubtful proposition the motor 'bus has emerged as the real triumph of the world of motor traction. Its position has not been achieved without trouble, and from this trouble it cannot be said to be clear even now. It has been attacked from many quarters. The L.C.C., in its capacity as the owner of tramways, has waged a campaign against it, taking up the stand that it ought to be taxed far more heavily than it is, in order to put it on an equality with the less efficient tramcar. The case is not put exactly in that way, but that is what it amounts to in the end. Local highway authorities have attacked it tooth and nail, on the ground that it causes undue damage to the roads under their administrative control, and legislation is being asked for to give power to these authorities to forbid the use of their roads to the motor 'bus. These powers, however, they are not likely to get, nor do we think that now that the Road Board has consented to allocate a portion of the money paid by the motor omnibus companies by way of petrol tax to the repair of extraordinary damage caused by heavy motor traffic, the authorities themselves will press for them. The agitation, such as it is, has been mainly fostered by tramway-owning municipalities, and is, from their point of view, quite understandable.

The taxicab industry is, unfortunately, not able to look back upon the year with the same satisfaction as that with which the 'bus companies can regard it. Undoubtedly, there are still too many cabs on the streets, besides which the increased facilities afforded by the cheaper motor 'bus must inevitably have cut into the business which would otherwise have fallen to the cab companies. In addition, the public has not yet lived down the feeling of irritation engendered by the men's attitude during the strike, which was in progress when the year opened.

Bound up to a great extent with public service development is the matter of mechanical transport in the Army. During the autumn manœuvres motor transport was employed to a much greater extent than ever before, and, according to the official reports available, more than justified itself, so that we may look forward to even greater developments in this direction during 1913.

* * *

Chassis and Body Design. In the matter of engine development, we have to confess that the year has not produced its main lesson along the lines we anticipated. The popularity of the 15·9 type had led us to think that the wonderful efficiency of these small motors would have led to the popularisation of an even smaller type, but this has not worked out according to anticipations. On the contrary, it has been found that people have tended to overload the small motor, and the result is that there is discernible a distinct movement towards a higher rating, particularly in the case of cars designed to carry a comparatively heavy closed body. So marked is this tendency, that it begins to look as though the popular types of the immediate future would be the 17·9 and the 20·1 for the heavier class of vehicles, with the 15·9, with a longer stroke than the ruling 120 mm. of a year ago, retaining its place for use as an open touring car. The silent chain as a means of power transmission to cam- and magneto-shafts has advanced so much in popularity that its use may almost be said to have become universal. The worm-gear as a means of final transmission to the road-wheels cannot be said to have progressed in favour during 1912. Indeed, it is questionable if it has not actually retrograded, which is somewhat surprising when the movement of two years ago is remembered.

So far as the development of the car as a complete entity is concerned, it can only be said that 1912 has been once more a year of detail improvement rather than of general alteration of design. So far as the main essentials are concerned, the car of to-day differs but little from its predecessor of 1911, though it is undoubtedly an advance over the latter by reason of its greater all round efficiency.

Before leaving the subject of cars and their rating, it is interesting to record that the Treasury Committee on horse-power rating made its report during the year, which was in favour of leaving things as they are, except in the case of the steam car, which it recommends should be assessed for tax on the area of heating surface of the boiler or steam generator. In the main, the Committee's report was received with approval by motorists, though the owners of old cars took strong exception to the fact that no recommendation for a reduction in their taxation was made by the Committee. This matter has, however, been the subject of representations by the R.A.C. to the Treasury, and the former is now awaiting an announcement of the official attitude regarding this very vexed question.

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In the case of body design, there is not much to record in the way of progress. The flush-sided torpedo type of body still holds the field, and has become fashionable even in the case of closed cars. The principal movement to be observed is in the direction of so shaping the bonnet as to meet and merge into the lines of the scuttle dash. In most cases this enhances the appearance of the car, while lending itself more to the true streamline effect than the older type of front with the vertical dash.

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Motor Cycling. In the realm of motor cycling another phenomenal year of progress has to be recorded, and although new firms have sprung up and the older ones have increased their facilities for the production of machines, the position of manufacturer *vis-à-vis* customer is no better than it was last year—the trouble is still that of delivery. Apart from the interest of the enormous growth of motor cycling, the year has been remarkable for the development of what has been called the new motoring, as represented by the cyclecar. The Motor Cycle Show produced quite a number of these light cars, some practical and some very much the reverse. This aspect of the case, however, we have already dealt with in the columns of AUTO. at the appointed time and place. What the future of this new movement towards the light car may be, we confess we are not in a position to judge at the moment, so we prefer to retain an open mind for the time being.

On the sporting side of the movement, the Tourist Trophy Races were of the greatest interest, the Senior Race resulting, as it did, in a victory for Mr. F. W. Applebee, who rode a two-stroke cycle engined Scott machine. The Junior event fell to Mr. W. H. Bashall, on a 2¾-h.p. twin-cylinder Douglas. Next in order of interest, came the Six Days' Trials of the Auto-Cycle Union, which attracted a very large entry and were productive of exceedingly interesting and instructive results. The Quarterly Trials, which have hitherto figured in the programme of the Union, were dropped in deference to the wishes of the trade. Incidentally, the trade has taken rather a large say in the matter of competitions, and not before it was time. All over the country clubs were promoting open events and appealing to the trade to support them, until the burden threatened to become intolerable, and the Manufacturers' Union has very wisely decided that its bond-signing members shall be placed under penalty not to support races or trials which have not received official approval.

The third of the series of Shows promoted by the Manufacturers' Union was held at Olympia in November, and proved to be even more of a success than its predecessors. In fact, in point of popularity it almost threatens to rival the Motor Show. On the whole, therefore, the motor cycling community has just cause to feel satisfied with the record of the year.

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Marine Motoring. While the 1912 season may not have been as brilliant as that of the preceding year—a fact to be laid to the charge of the wretched summer, which made all forms of outdoor sport uncertain and uncomfortable—there is one event on which we have just cause to pride ourselves. We refer to bringing back to this country of the British International Trophy, which was won by Mr. Mackay Edgar's "Maple Leaf IV," racing against the pick of the defending American boats. Now that it has once again found quarters on this side of the Atlantic, it is to be hoped that it is here for a long time to come.

In spite of the poor conditions, both the Royal Motor Yacht Club and the British Motor Boat Club are able to look back upon a successful racing season, while the same may be said of the crack Continental racing clubs.

A year ago we were able to remark upon the large amount of attention that was being given to the propulsion of large ships by internal combustion engines. Much quiet progress has been made during 1912, and only three weeks ago it was announced that a large and powerful company was about to come into being for the purpose of properly exploiting the internal-combustion marine engine in this country. The future, therefore, seems to be full of promise for this side of what we must call the motor industry at large.

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An Exhibition of Road Materials, &c.

GOOD progress is being made with the arrangements for the exhibition of road materials, machinery, &c., which will be held at the Royal Horticultural Hall, Westminster, in connection with the International Road Congress, to be held in London next June. It will be opened on Monday, June 23rd, by the Rt. Hon. Earl Beauchamp, First Commissioner of H.M. Office of Works, and will close on Saturday, June 28th. All the leading firms engaged in the road making industry have decided to exhibit, and to provide space for heavy machinery a piece of ground adjoining the main hall is being roofed and walled in, while the floor will be paved with wooden sleepers.

Motor Cars in Canada.

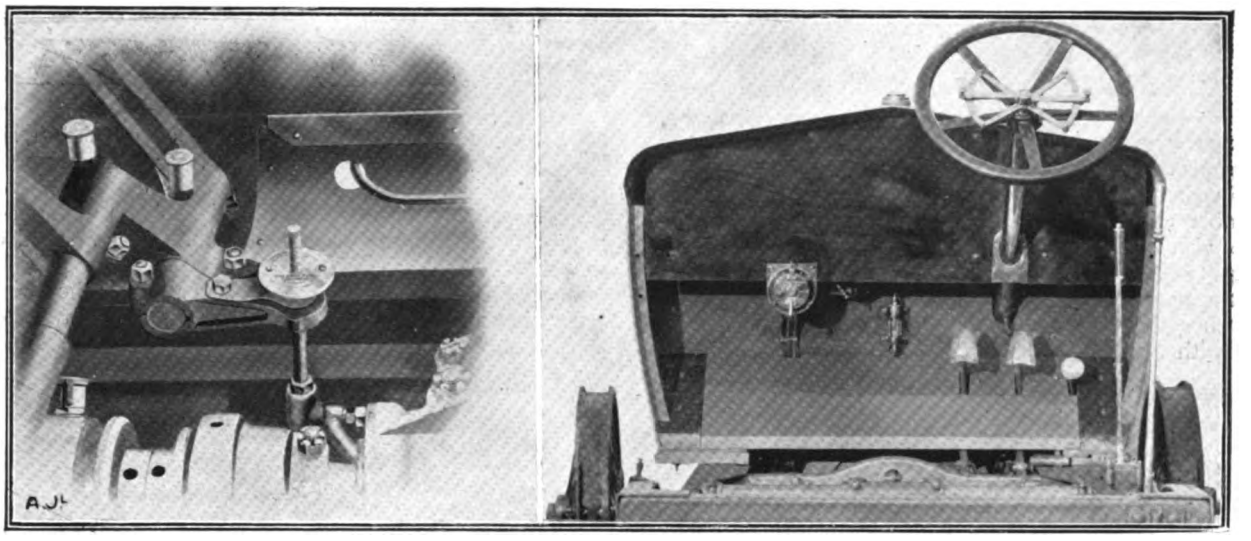
SOME statistics which have recently been compiled from Canadian Government Reports show that there are 21,920 motor cars in the Dominion, or about one for every 323 inhabitants. Alberta has the most motor cars in use in proportion to its population, there being one car to every 124 persons, the population being 374,663. Manitoba is second with one car for every 152 persons, British Columbia third with one for every 165, Saskatchewan one for every 194, while Ontario, which has the largest number of cars in use, only has one to each 344 of its population. In the province of Quebec, where the population is 2,002,712, the number of cars is 801, while in New Brunswick there are 594 cars distributed over a population of 351,889. In Nova Scotia there is only one car for every 851 inhabitants.

It is stated that over 9,000 American cars have been sold in Canada during the past three years.

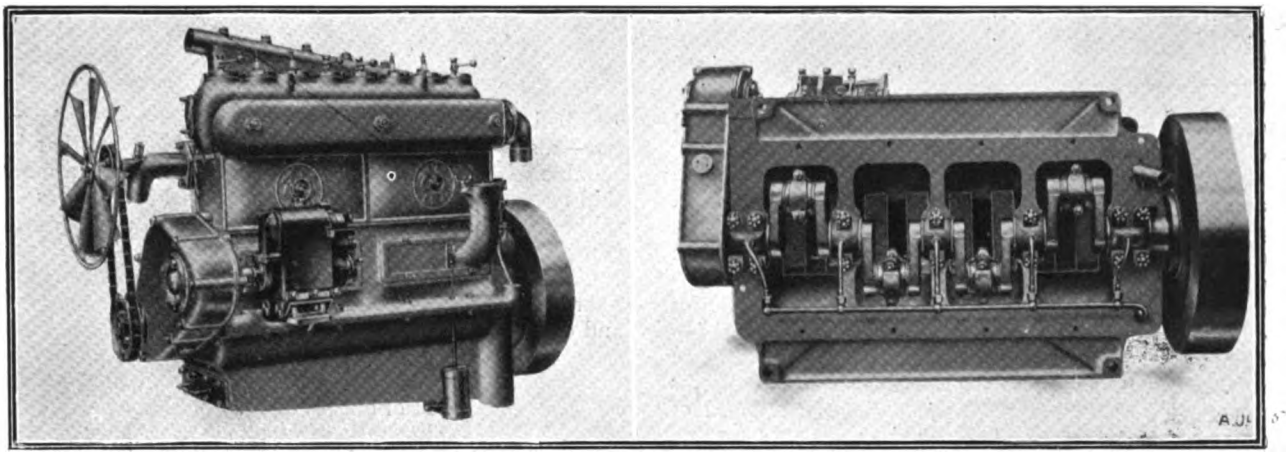
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For the Best Hotels, see "Auto." Guide every week.

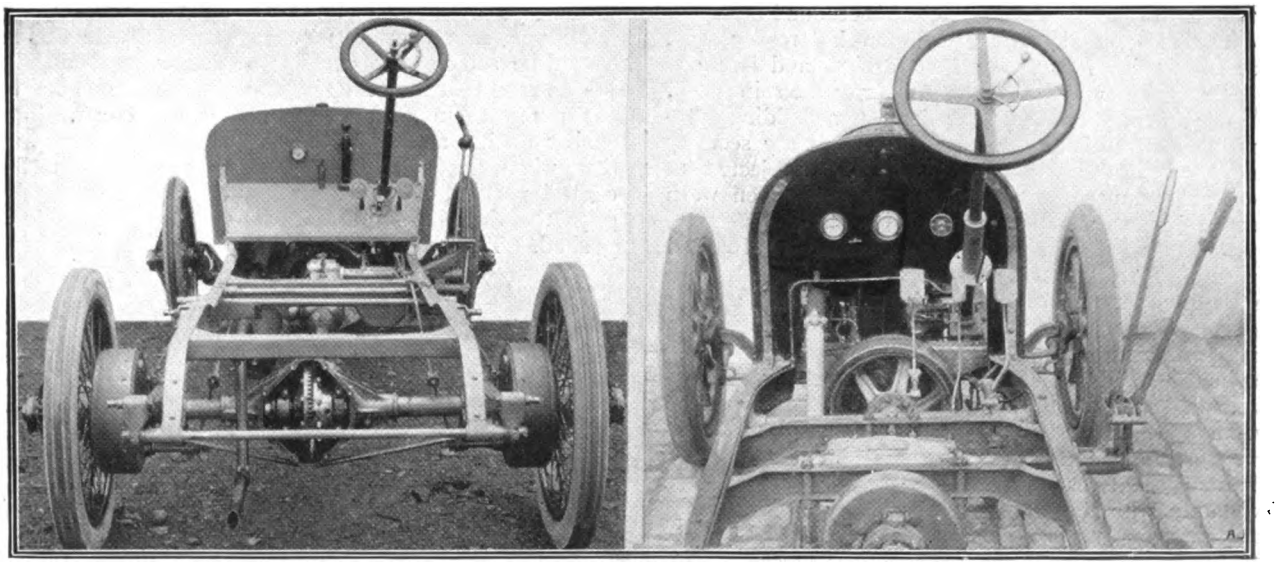
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A neat foot-brake adjustment on the Vauxhall chassis, and a well-designed dashboard (which includes a petrol tank) on the Deasy chassis.



THE LATEST VAUXHALL ENGINE.—The view on the right shows the lubrication to the crank-shaft.

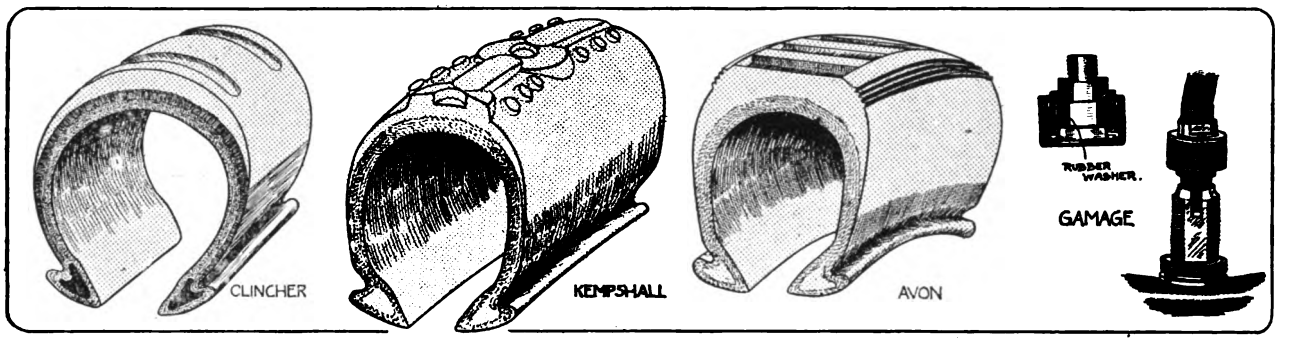


Views of the dashboard on the Straker-Squire and Benz chassis. The view of the Straker-Squire also shows the accessibility of the differential on the back axle.

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ACCESSORIES OF THE WEEK.

THE grouping together of all the tyre firms at the recent Olympia Show—an arrangement which was a great help to the visitor—made one realise very forcibly the large number of these firms there are in existence. Even after visiting the thirty-odd firms there represented, one saw—to perpetrate an Irishism—many familiar firms that were not present. We show in the accompanying sketches, the sections of three well-known tyres that have met with some considerable success, viz., the Clincher



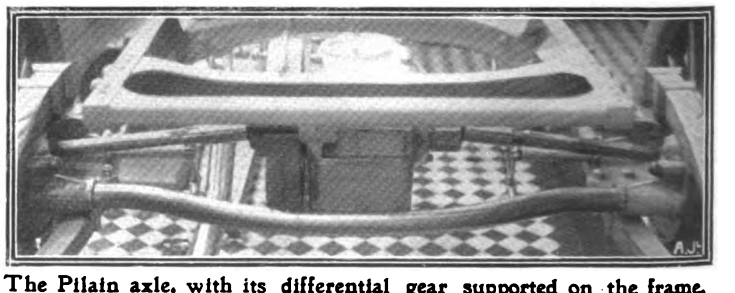
grooved, the Kempshall rubber-studded non-skid, and the new Avon extra thick grooved.

FOUR different patterns of Clincher motor tyres are manufactured by the North British Rubber Co., Ltd., at Castle Mills, Edinburgh. Each of these patterns is designed to meet certain road conditions, and with the four types, the motorist can make a selection to suit his varied requirements. Pattern "A," which is suitable for racing or light cars, is a plain ribbed tyre; pattern "B"—the subject of the first of our sketches—is a grooved tyre particularly suitable for heavy work. The tread of this latter tyre is of ample thickness, and is composed of extra toughened grey rubber, with the grooves formed transversely. The particular advantage of this type of tread is that while it provides a good grip of the road, it does not catch in tram lines, &c. The two remaining patterns, "C" and "F," are a rubber-studded non-skid, and a steel-studded leather-tread non-skid respectively. The former is of Bailey's patent design, and is made of a special quality of white rubber, which in itself, it is claimed, possesses excellent non-skidding properties. In the latter tyre the steel studs are securely fixed through the tread, so that unless subjected to abnormal strain they will not pull out, and when worn completely down the cover may be re-treaded.

OUR second sketch shows the Kempshall "Moulded Antiskid Tyre," which, although only put on the market recently, has already attained considerable popularity. As its name implies, it is a moulded all-rubber tyre with a specially toughened tread of the familiar Kempshall pattern, a series of rubber "cups," the sucking action of which is said to be mainly responsible for their non-skidding properties. The prices of the tyres in question compare very favourably with those of the other Kempshall patterns, averaging out at about 13*s.* cheaper than the plain grooved tyres, varying, of course, according to the size of tyre. These latter tyres, by the way, are moulded under great pressure, so that there is little fear of the tread coming apart from the casing, and further, a longer life is claimed. Other Kempshall tyres consist of the ribbed square-tread non-skid, the all-rubber round-tread non-skid, and the combined steel and rubber studded non-skid.

AN entirely new and distinctive pattern is the Avon tyre shown in the third sketch. It has a broad square tread somewhat thicker than usual, with transverse grooves and a ribbed edging on each side. Another interesting Avon tyre—also but recently put on the market—is one that is suitable for light cars, especially cycle cars. It is a non-skid tyre, the tread of which is composed of a series of rubber bars and steel studs. A plain round-treaded pattern is also made for use on light cars. The Avon India-Rubber Co., Ltd., of Melksham, Wilts, have also a large department for the repairing of all kinds of covers and tubes.

WHILE on the subject of tyres, we think that a description of a neat device to facilitate inflation, which is shown in the last of our sketches, would not be out of place. The fiddling task of attaching the pump to the tyre valve is, in cold and wet weather especially, by no means a pleasant job, but the device in question, which is marketed by A. W. Gamage, Ltd., Holborn, E.C., enables this to be done by just pushing it on the tyre valve and giving it a quarter turn. A glance at the sketch should be sufficient to explain the *modus operandi*. It will be seen that the central portion, which is attached to the pump tubing, screws into the outer collar. The rubber washer acts as a cushion between these two, so that when the collar is turned, thus screwing in the central portion, the rubber is compressed and thereby grips the threaded nipple of the valve on which it is pushed. The price of this useful article is one shilling.



The Pilain axle, with its differential gear supported on the frame, and its wheels driven by cardan shafts. The axle proper forms a rigid bridge between the wheel hubs.

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MISLEADING STATISTICS.

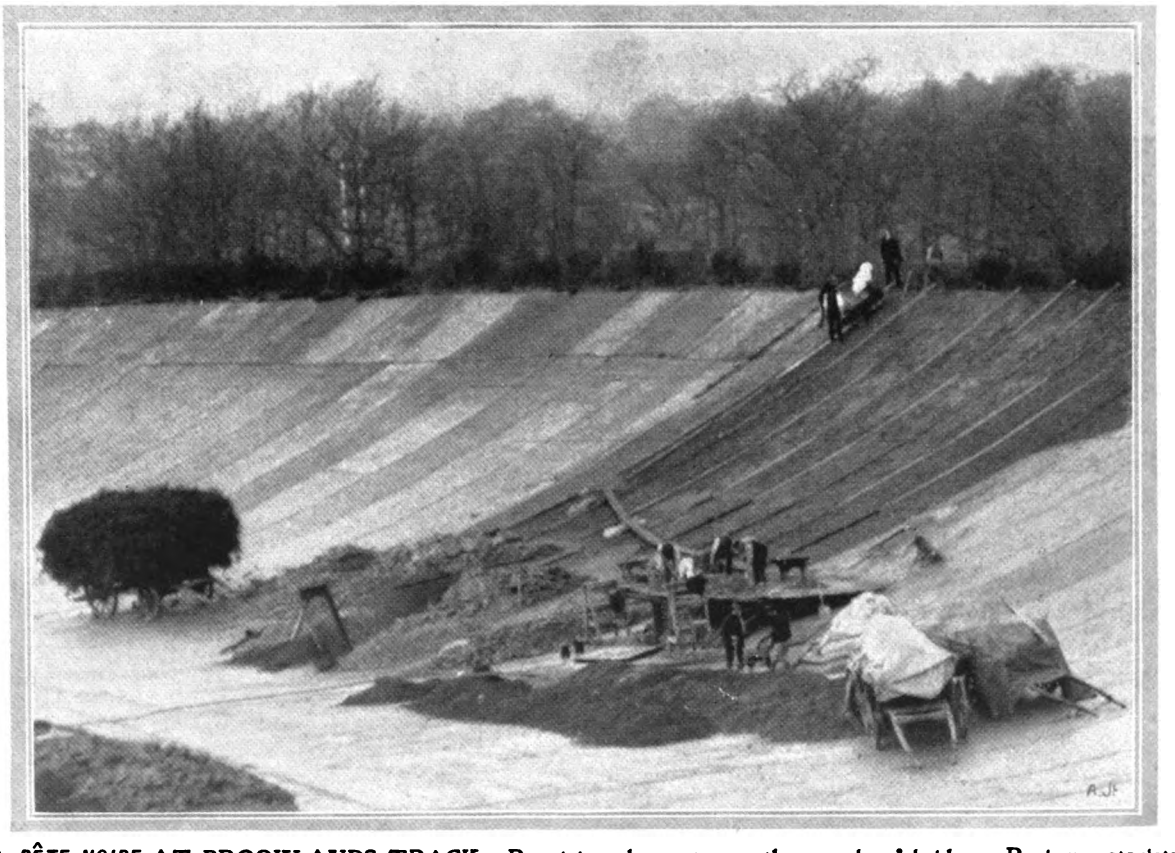
CENSUS figures always have an attraction, but they are often difficult to compile, and, unless the difficulties can be overcome and the figures be made approximately correct, they are better left undone. These reflections occur to us after a perusal of the statistics of the number of cars and motor cycles in commission published in the Christmas number of the *Car*. According to the return, the total number of motor vehicles of all types in the United Kingdom is 320,119, as compared with 266,258 at the corresponding period of last year. These are made up of 175,247 cars, 132,245 motor cycles, and 12,627 heavy motor vehicles. The figures are very interesting, and have been compiled, doubtless, with all imaginable care by Lord Montagu, but we are afraid that a little examination will demonstrate that they are a long way from being correct. From the table we learn that there are registered in London alone 81,434 motor vehicles of all classes. Now, London has nine registration marks allotted to it, each representing one less than ten thousand individual registrations as regards eight of those marks, the ninth now being in use for the issue of registrations. Obviously, therefore, the London figures include all motor vehicles registered with the L.C.C. since the Motor Car Act came into operation, and in them no allowance is made for lapsed registrations or cars that have gone out of commission. It is evident, then, that the London figures account for a great many more cars than are actually in use on the roads. Hertfordshire, it is to be noted, only claims to have 632 motor vehicles in commission under its registration mark, but this number, we have reason to know, relates only to cars and motor cycles registered during the elapsed twelve months since the figures were last supplied. We are traversing these figures not in any spirit of captious criticism, but simply because we do not think it wise that they should pass unchallenged in their incorrect state. As a matter of actual fact, there is only one way in which a real car census can be compiled, and that is from the statistics of the Inland Revenue authorities, which deal only with vehicles on which the tax has been paid, and which are thus obviously in active commission.

Motorism Opening Up New Districts.

ONE of the arguments often advanced in favour of such a scheme as the relief road at Croydon is that they would result in opening up new districts, and in this connection it is interesting to learn that the Croydon Town Council has decided to prepare a scheme of town-planning for the country between Wadham and Russell Hill, which is along the route of the proposed relief road.

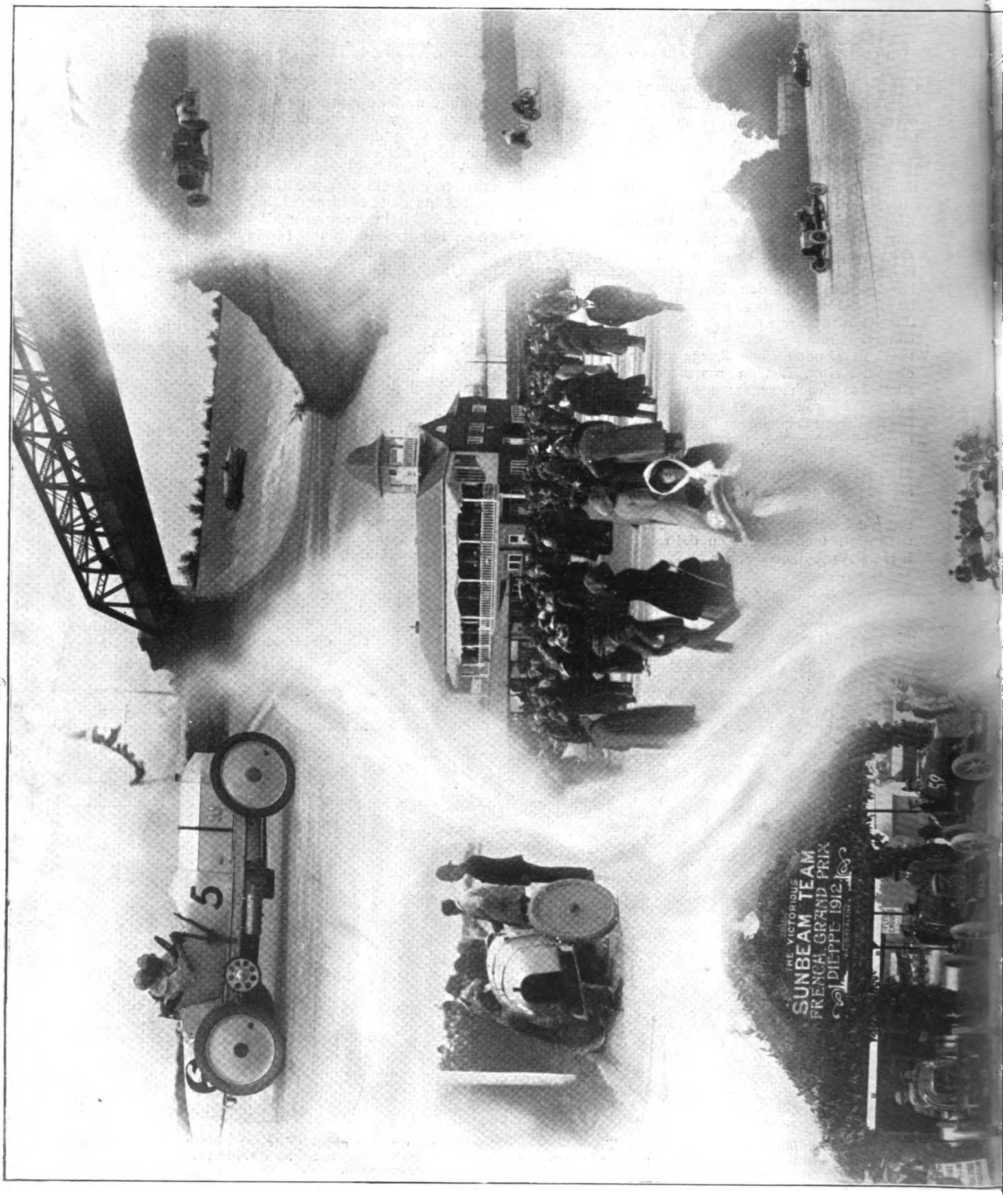
Ontario's Revenue from Motor Cars.

IN Ontario last year 11,339 licences for motor vehicles were issued and the fees totalled to £10,166, a considerable improvement on the previous year (1910) when the licences numbered 4,320 and the fees brought in £4,878. In 1906, when fees were first imposed, 1,176 licences were issued, the fees amounting to £3,047.

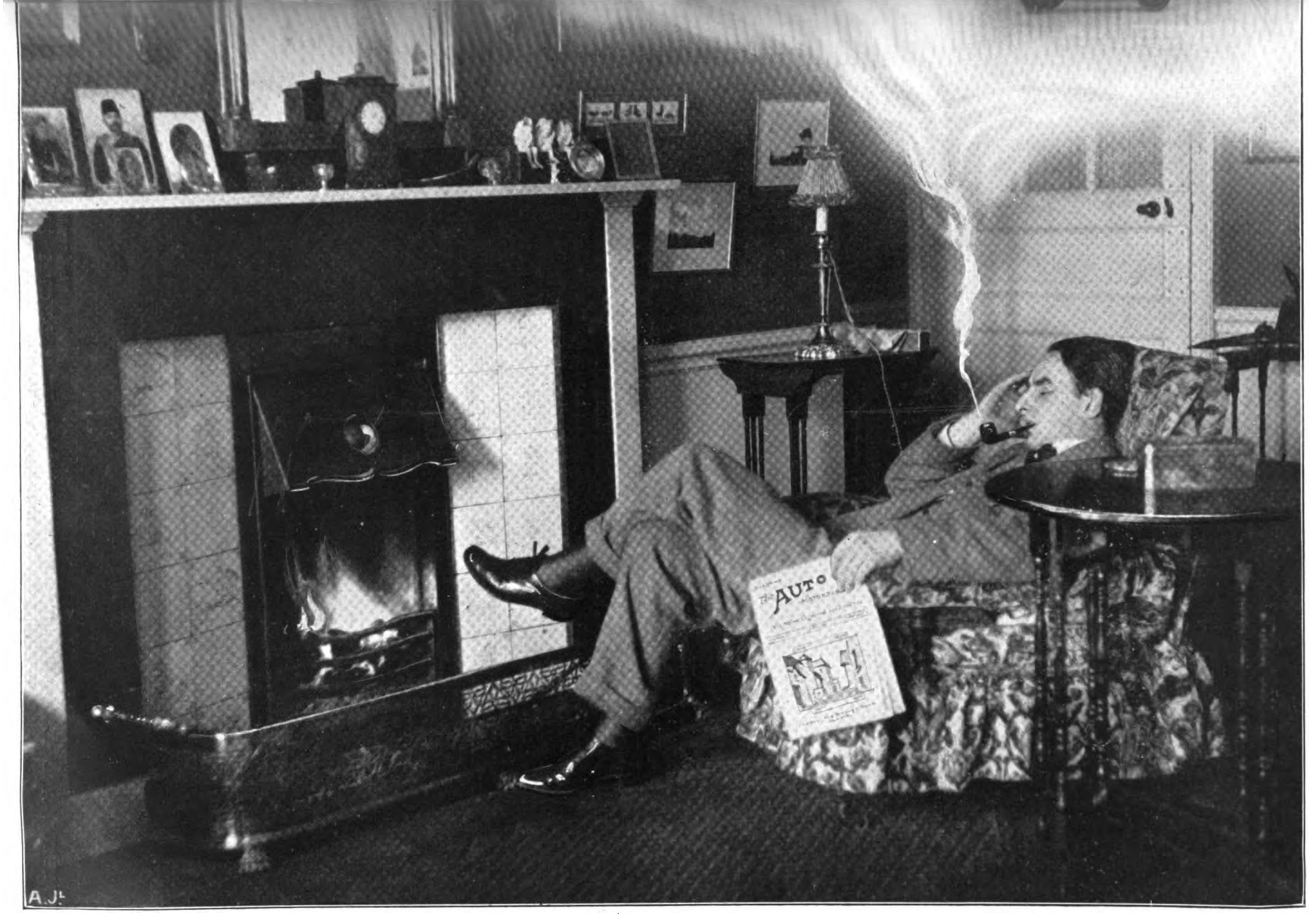


A *BÊTE NOIRE* AT BROOKLANDS TRACK.—Repairing the spot near the members' bridge. Racing motorists will remember this spot well by reason of the cars, when at speed, bounding into the air with, at times, awkward results to the control of the accelerator pedal.

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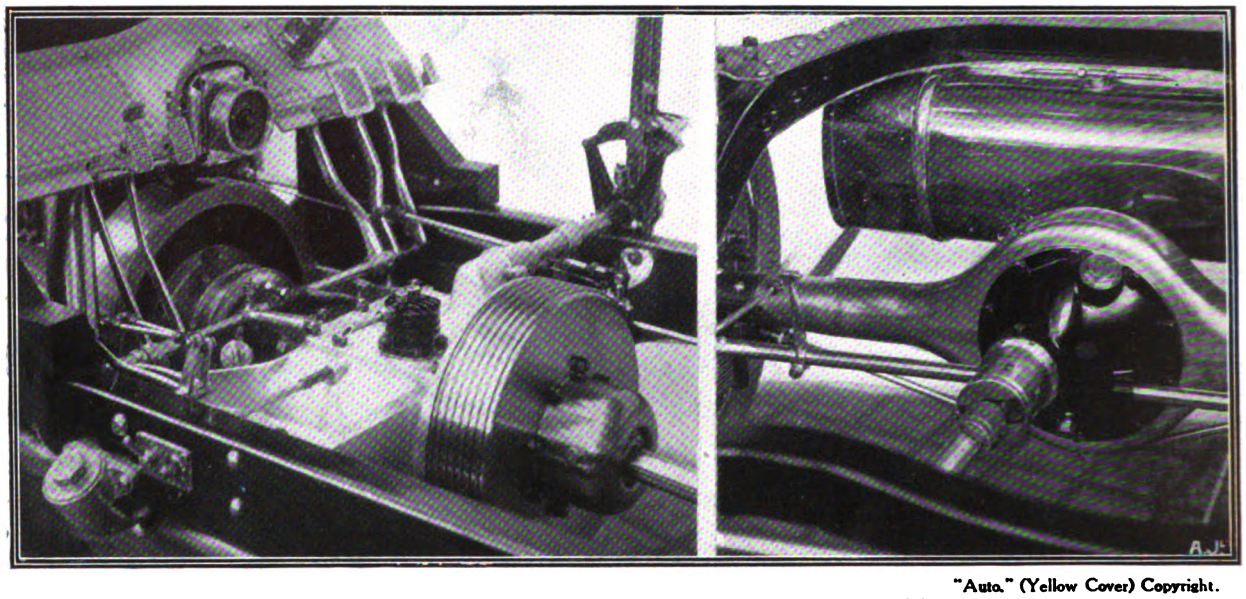
A 1912 DREAM OF BROOKLANDS.—From top, left to right: 1. Mr. Gordon Watney's 48·6-h.p. Mercedes winning the Sixth 100 m.p.h. Long Handicap. 2. D. Resta, on 30-h.p. Sunbeam, breaking the 50 miles record. 3. D. Resta, on 41·9-h.p. Mercedes, and G. W. Brown, on 48·6-h.p. Mercedes, in the Seventh 100 m.p.h. Short Handicap. 4. Mr. Campbell's 59·6-h.p. Darracq, with both near-side wheels off. 5. Crowd in the paddock at Brooklands. 6. A close finish in the Eighth Short Motor Cycle Handicap. 7. The winning Grand Prix Sunbeams. 8. Start of the One-Hour Cyclecar Race. 9. Finish of the Standard Car Race. 10. F. Burgess, on the Calthorpe, winning the 70 m.p.h. Short Handicap.

[*Toned photographic enlargements* (20" × 12") *of this plate can be had, price* 5*s. each, from Photo Dept.*, *AUTO.*, 44, *St. Martin's Lane, W.C.*]

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THE 30-40-H.P. PICCARD-PICTET CHASSIS.

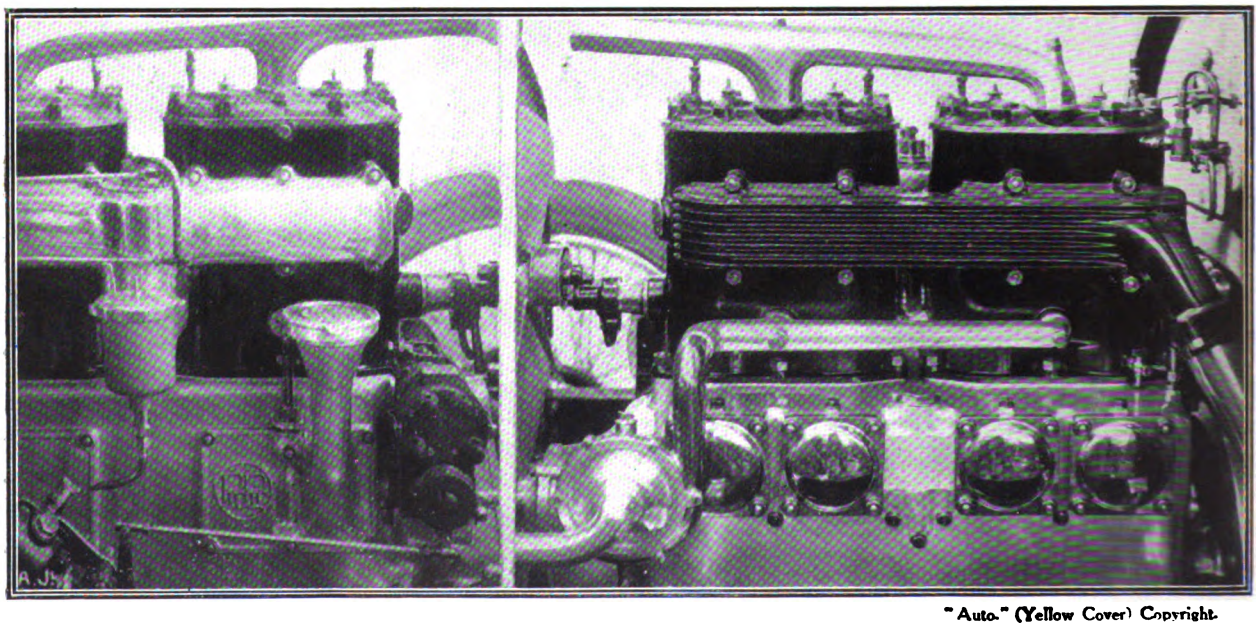
THERE is no denying the fact that a good deal of rivalry exists between the two types of sleeve-valve engines, the Daimler-Knight and the Argyll. While the former has been adopted by quite a number of British and foreign firms, the Argyll engine so far is manufactured only by one Continental maker, Messrs. Piccard and Pictet, of Geneva. We have, however, reason to believe that by the time of the next Olympia Show, the elliptical sleeve-valve engine will be in evidence on more than two stands. On the stand of Messrs. Donne and Willans, the British agents for the great Swiss engineering firm, the writer examined the 30–40-h.p. Piccard-Pictet chassis in company with Mr. Matthew, managing director of Argylls, Ltd., under whose licence the Piccard-Pictet engine is manufactured, and we can heartily endorse his remark that his firm has reason to be proud of its association with Messrs. Piccard and Pictet. It is, indeed, difficult to imagine a finer example of automobile engineering, as regards design and workmanship, than the 30–40-h.p. "Pic-Pic" chassis.



"Auto." (Yellow Cover) Copyright.

CENTRAL PART AND REAR AXLE OF THE 30-40-H.P. PICCARD-PICTET CHASSIS.—Of the two small pedals on the left, the inner one works the exhaust horn and the other the cut-out. Note the tyre pump, with tube connection, on the outside of the frame; also the oil filler for the gear-box.

Although incorporating the chief feature of the Argyll design, the elliptical sleeve-valve, the engine differs in many other points from its prototype. The cylinders, which are cast in pairs, are kept well apart so as to allow



"Auto." (Yellow Cover) Copyright.

CARBURETTOR AND EXHAUST SIDE OF THE 30-40-H.P. PICCARD-PICTET ENGINE.—Note the accessibility of all the parts requiring attention.

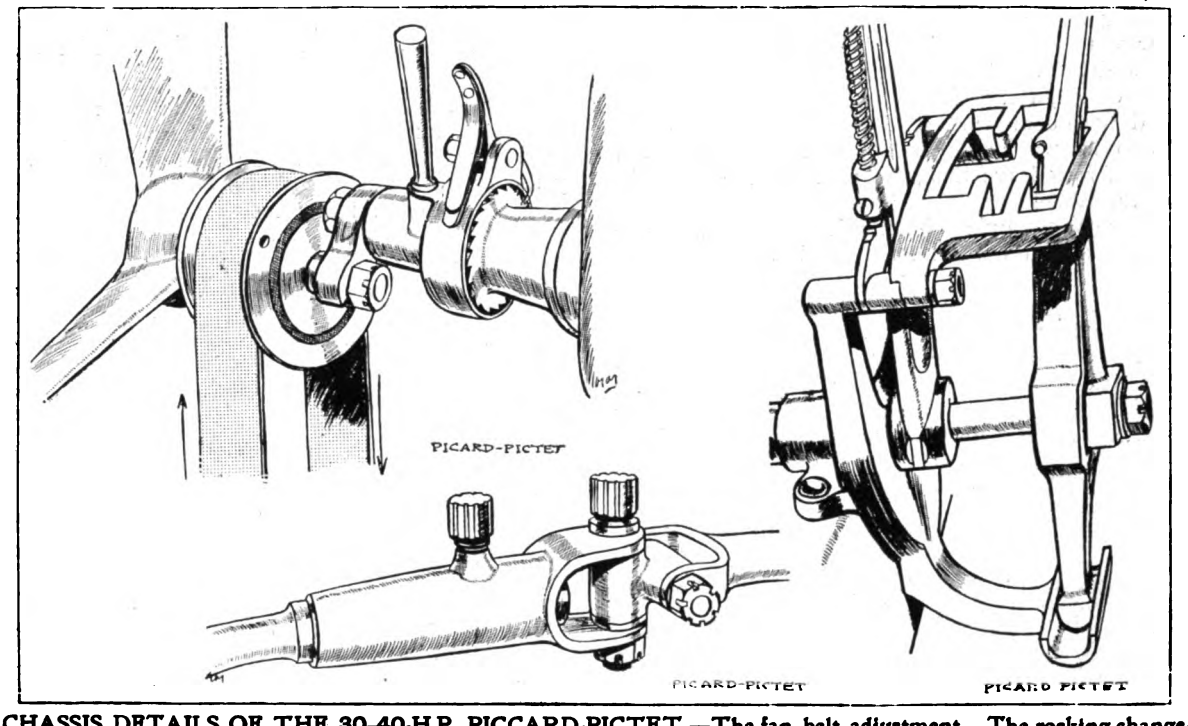
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plenty of water space and ample room for engine-bearings. The bore is 100 mm. as in the Argyll, but, while the stroke in the latter is 130 mm., in the Swiss engine the pistons-travel is 150 mm. The sleeves are actuated by worm-driven eccentric-wheels, and rotate in opposite directions; that is to say, sleeves Nos. 1 and 3 rotate one way, while Nos. 2 and 4 work in the opposite, so as to compensate the thrust on the driving-shaft and for better balance.

A worm-driven transverse-shaft on the forward end of the base-chamber drives the water-pump on one end and the Bosch H.T. magneto on the other. Both are readily accessible. The fan is remarkable for its ingeniously simple and substantial belt adjustment in the shape of an eccentric ratchet-gear. No tools whatever are required to adjust the tension of the belt. Large inspection-plates are fitted on the off-side of the crank-case, and the oil-filler is well-nigh ideal. It is accessible, of very ample size, and shaped so that no funnel is necessary for filling up.

results out of his engine, which is not always possible with a purely automatic type of carburettor. Pressure for the petrol tank is provided by a small pressure-valve fitted direct to the combustion-chamber of the last cylinder, which is clearly noticeable in our illustration, showing the exhaust side of the engine. The exhaust-pipe is of extraordinary large diameter, and leads in a very graceful sweep from the air-cooled manifold to the three-way valve on the silencer. The gases ordinarily pass through the latter in the usual way, but they can be deflected by means of the two small pedals, shown in one of the pictures, through a cut-out or an exhaust-operated horn, which is fitted to the near-side forward dumb iron, so as to throw the sound forward.

A multiple disc-clutch conveys the power to the four-speed gear-box, which is connected to the crank-case unit fashion by a casting forming a well for the fly-wheel. Oil is used as lubricant in the gear-box, and is filled in through a large tube projecting beyond the side membe



CHASSIS DETAILS OF THE 30-40-H.P. PICCARD-PICTET.—The fan belt adjustment. The rocking change-speed-lever; note position of brake-lever inside the gate. The joint between steering push-rod and swivel-arm, consisting of a universal joint and buffer-box.

A level indicator, overflow, and drain tap is provided close up to the filler. Lubrication is by pump-feed to main bearings and through the hollow crank-shaft to the big ends. The crank-pins, which are of very large diameter, are drilled out for lightness, the hollow is plugged up on either end by a light cover, so as to form a convenient oil-reservoir for the big end bearings, which are thereby kept supplied with a copious quantity of lubricant.

The carburettor and the induction-pipe are cast in one piece. The former is manufactured under licence from the designer of the Hispano-Suiza engine, and from what we have seen recently of the performance of this car, we can congratulate the makers on the choice of their carburettor. It is one of the most flexible and withall most economical types we can recall, and, being semi-automatic, allows an intelligent driver to get the very best

of the frame, so that the driver never need run the risk of spoiling the more or less delicate interior of a fine carriage by grease or oil spots. A small gear-driven tyre pump is fitted to the lid of the box, and is connected to a union piece on the outside of the frame for attaching the connecting tube. The gears are controlled by a "rocking" lever on the gate system.

The propeller-shaft has universal joints on both ends, and the drive in the rear-axle is by bevel gearing. The axle-casing is a remarkably clean and fine piece of work, in its appearance somewhat reminiscent of American practice. The differential is readily accessible from both sides after removing the cover-plates. Underslung three-quarter elliptical springs are used behind, while the front springs are semi-elliptic.

All brake-drums are provided with cooling-ribs, and all are of the same size, so as to be readily interchangeable.

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There is no end to the many refinements incorporated in this machine; indeed it seems that no part of the chassis, however insignificant, has escaped very close attention on the part of the designer. Every shackle-pin, for instance, is provided with a bronze bush and ample means for lubrication. The steering gear is well worth a critical examination, which reveals that the steering push-rod is universally jointed on either end, instead of having the usual spring-loaded ball joints, but in order to account for sudden sharp shocks a buffer-box is fitted immediately behind the forward joint.

Although the method of carrying the lighting-dynamo on a platform over the fly-wheel is not quite original, we have never seen it carried out in a neater and more workmanlike way than in this instance. As can be seen from our illustration, a flat belt pulley is cast integral with the clutch-casing.

Although the design, material, and especially the workmanship of this chassis are beyond reproach, its price has been fixed at £660, and at this figure is decidedly moderate.

The address of Messrs. Donne and Willans, the English agents for Piccard-Pictet cars, is 29A, Gillingham Street, London, S.W.

REFLECTIONS ON COLOUR SCHEMES AT OLYMPIA.

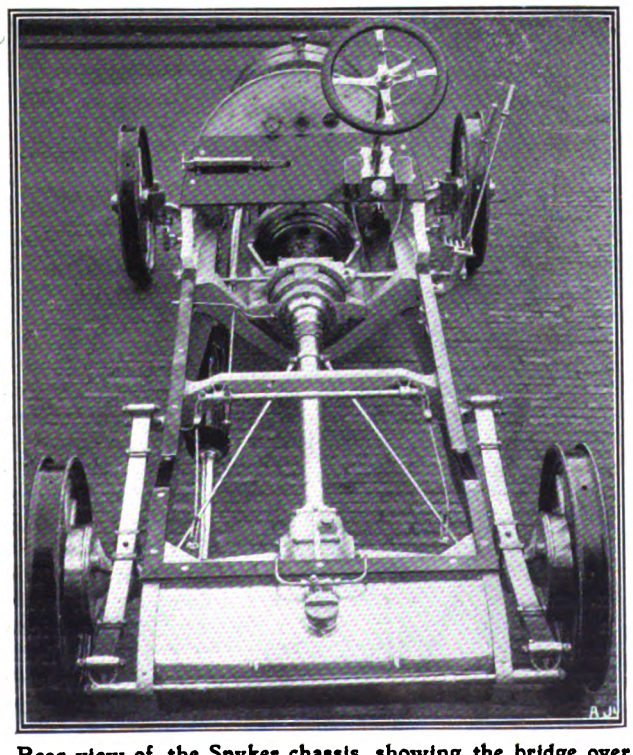
By J. PROCHAZKA.

ONE of the most attractive colour schemes at Olympia was a delicate cream-white with a few brass contours, brass fittings, and dark, dull olive green leather coverings. The sparingly used mahogany on the dash and the black steering wheel helped to emphasize the general cream-white and gold effect.

Contrast this with the insipid pale chocolate, brown leather and brown contour lines. Possibly it may be very serviceable, and polished wood or its imitations may be good and commendable for shooting—I do not profess to know anything about that pastime—but I would prefer to leave this colour arrangement to the funeral furnishers.

In many cases, a quiet, if somewhat common, scheme of dark green and black, heavy as this combination is, was further spoiled by broad mahogany window frames, which only helped to attract attention to the stolidity of the general design.

We moderns are afraid of strong pure colours, hence, even in coach paint, the desire for broken tints. Indeed, the only strong combination we tolerate is black and white. Anything to suit our modern, effeminate mind must be subdued; but, it needs the English taste to bring broken tints into delicate harmonies. In Art, this finds its expression in the preciousness of English water-colourists. Even so at Olympia. I noticed a Continental attempt; uninteresting, in dull grey. For myself, I would call it a dirty white. The deathly tone was extended even to the leather coverings; it made me think of the operating theatre at St. Bartholomew's. On another Continental car, a group of reds, purples, and brass, made it seem almost barbaric. Both were no doubt an attempt at subdued, broken colours. And yet, even this I would pardon before the arrangement of positive yellow and black, so reminiscent of Austrian post office vans.



Rear view of the Spyker chassis, showing the bridge over the brake-drum for the support of the spherical head of the propeller-shaft casing.

Nor are such colour schemes improved by small rounded windows, pretty little bows and tassels, or such trimmings as might have been intended for Christmas bazaars. That this arrangement, with modifications, can give even a charming effect, however, was clearly demonstrated by a car, one of the most beautiful at Olympia. It was painted pale warm yellow (a very delicate tint), contrasted by bold black framing of windows, natural polished wood, with pale tawny leather coverings forming the interior.

An ugly combination of colours for motor cars is neutral, cold grey, rather dark, with heavy, dull black and wickered design. I should have expected that for some £200 one could get a neater whitewash. I am not fond of grey, the metallic colour. One of those oxydised cars at Olympia, almost perfect in its design, looked more like an engine of war than of pleasure. I wonder, was this car calculated to attract the attention of officers! Perhaps so, then by the same reasoning, the wickered machine was designed for glorified costermongers.

A beautiful combination of colours was a quiet emerald green, with a leather of dark brown olive green, touches of mahogany, brass fittings, and positive black for the steering-wheel and the support of the hood.

Often the seats for the chauffeur are left unnecessarily plain black. It is one thing to keep a chauffeur in his place, and quite another to keep his place out of sight. I had this in my mind particularly when I noticed a handsome car, deep sea blue-green, with heavy, broad black and an interior of fine grey fabric with dignified woven pattern. The plain black seat for the man at the wheel, deserved in this case, at any rate some attention.

To the English coachbuilders I advise, as a guiding thought, their national characteristic—restraint. Surely the delicate, broken, but pure tints will be appreciated by countrymen of Turner. Above all I want beauty; we have enough of mournful blacks, and browns, and dark blues and greens. A motor car, as seen at Olympia, can possess a flower-like beauty.

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MOTOR CYCLE MATTERS.

By "MULTI."

About Tyres.

THIS item, admittedly the most serious in the running expenses account—for which reason it should be a topic of more than ordinary interest—has not in my own case proved so heavy as some would have us believe. I read an article a month or two ago, for instance, from the pen of the writer with whose opinions I am usually in accord, to the effect that the life of a 35*s.* cover is about a thousand miles only, and that the first gash sounds its death knell; also that, as nearly as my memory serves me, the highest priced covers are only good for mileages not exceeding 4,000, even on solo machines; both of which expressions of opinion have since been supported by other correspondents.

Now this is so foreign to my own experience that either I must count myself as particularly fortunate in my purchases or particularly careful in manner of driving; or, alternatively, those who complain in this way must be very unlucky or must be themselves responsible for such unwarrantable extravagance in tyres. Innate modesty forbids me assuming any uncommon driving ability, and I have had too many covers for the element of chance to be a constant factor in my favour, so I am forced to believe that the stated ruin, after 1,000 miles running, of a tyre that has been turned out by a reputable firm is either an exaggeration, or, if accurate, the result of culpable neglect, an immoderate thirst for speed, or a combination of both.

I keep a careful mileage of all my tyres, though not always of the price I pay for them, and although I have tried practically all the different first-class makes on the market, and have certainly paid widely differing prices, yet never do I remember running a tyre that has proved so short-lived as the statements referred to above would lead one to infer was natural.

Here are a few figures and facts culled from my memoranda and extending over the last two years or so. About the beginning of that time I bought, for half-a-crown, a new Englebert cover, which was sold to me at this figure on account of the rubber on the walls having perished through exposure to the sunlight while on a show machine. This cover lasted me over 2,000 miles —2,017 to be precise—on the front wheel. Not so bad for 2*s.* 6*d.*

My next purchase was a Michelin 2-in. wired tyre, obtained through the ordinary channels and at the usual price of 14*s.* or 15*s.* This tyre I fitted to the back wheel of a *shaft driven* lightweight, and my records tell me that it ran for 1,726 miles before I thought it advisable to have a Bates' band vulcanised on the tread and to transfer it to the front wheel—where it still is. And this is the worst mileage I have ever obtained on the back wheel of any machine; even in this case, however, I believe that had the transmission been by belt the figures would have been improved by over 50 per cent. And note the price!

This cover was replaced by a studded Continental, which cost, as far as I can remember, 26*s.* or 28*s.* I had the misfortune to gash this severely on my first day's run; a "spiked" internal plaster, however, made what I thought at the time to be a good *temporary* repair, but although this cover has since put some 2,000 odd miles to its credit, the plaster, which cost a matter of 8*d.* or 9*d.*, I think, still performs its duty as well as it did on the first day—which only goes to show that a tyre is not necessarily ruined by a bad gash. I should say the cover has yet another thousand miles of life before it, and despite the misfortune of the gash, I consider it to be one of the best tyres I ever used, the positive drive of the shaft being accountable, in my opinion, for a deal of difference in the life of a tyre.

Concurrently with the above, the record of tyres on my passenger machine is as follows: originally shod with 2¼ in. Kempshall anti-skids, I find that it was not till 1,914 miles had been run that I considered the back tyre too far gone for further useful service in this position. It was replaced by a Kempshall heavy non-skid, which has with every satisfaction—one puncture only, and that due to a long nail—carried me 3,500 miles to date, most of the distance being with sidecar and passenger. Moreover, the tyre has still plenty of rubber on the tread, and looks good for another couple of thousand miles at least. And this machine is chain driven.

Not since 1907 have I owned a single-cylinder machine with belt drive, but, although my records up to that time are incomplete, I find from those I have by me that the average life of the back tyre—all of which would come within the 35*s.* class—was apparently between 4,000 and 5,000 miles. That my own experiences are not unique may be gathered from the published reports of the tyre trials (*sub* A.C.U. 6-days' trial), which forms valuable evidence of what may be expected from good tyres over the worst of road surfaces and under the most arduous conditions. A study of this report should be of immense advantage to all those whose tyre bill seems to be abnormally large, and should do much to reassure any who may have been deterred from taking up the pastime by considerations based on the statements to which I now join issue.

In the light of my own experience, therefore, I consider that a 2¼ ins. cover, at a price of 35*s.* or thereabouts, on a touring 3½-h.p. belt-driven machine, is quite capable of averaging a good 4,000 miles on the back wheel of a solo mount. The heaviest 2¼ ins. tyres at, say, 50*s.* to 60*s.* each, are good for this figure on the same machine even with sidecar attachment—and in many cases considerably more.

A Small but Useful Magneto Hint.

The damp weather we are very apt to experience about this time of the year has the effect of causing fibre to swell, as likewise, it is worth remembering, does oil and grease. The bell crank lever on the contact breaker, one end of which carries the movable platinum point, is pivoted by a pin having its bearing in a fibre bush, and should this bush swell the free movement of the lever is hindered, so that at high r.p.m. the C spring, which normally returns the lever to its "make" position after separation on the platinum points, is not strong enough to overcome the additional friction before the next "break" period arrives; consequently misfiring takes place. This is a very frequent and often totally unsuspected cause of misfiring at high speeds, for examination of the contact breaker as likely as not fails to disclose the source of the trouble, and the remedy consists in easing the fibre bush very slightly. This is best done by inserting the end of a small roll of fine sandpaper and giving it a gentle rotary motion. A couple of turns or so will often be found sufficient, but in any case great care must be taken not to overdo it.

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Incidentally, I should like to make mention that a peculiar effect of the swelling of this bush on one of my machines, for which the reason has never been quite clear to me, was that, although, once started, the machine would fire perfectly at all speeds, yet whenever I made a stop, no matter whether for a period of seconds or days, the platinum points always stuck open and had first to be brought together by hand before I could re-start the machine. Of course, in such cases the above remedy is fairly obvious, though perhaps the mistake of oiling the bearing would be made by those unacquainted with the above-mentioned characteristic of fibre, but too much emphasis cannot be placed upon the importance of delicacy in performing the operation, and the method given shows what appears to me the simplest and safest way of putting it into effect.



Notes from New York

As a result of the experience gained with the few motor vehicles at present in use by the fire brigade, the city authorities of Pittsburg have decided to spend next year £50,000 on motor fire engines, &c. It is anticipated that during the next twelve months all the city stations, as well as some of the stations in the suburban districts, where long runs are sometimes made, will be equipped with modern appliances.

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The policemen in Indianapolis are in luck's way, at all events, those who have to do duty as traffic regulators in the business portion of the city. It has been decided to spend $700 on the purchase of a dozen small steam-heated platforms on which "Robert" may stand when the thermometer shows that the temperature is sufficient to give anyone "cold feet" in the literal sense of the word.

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Apparently someone has been reminding the New York "cops" of the by-law against smoky exhausts, as they have been keeping a very observant eye upon the backs of motor cars. As a result, in one day 33 drivers were summoned before the various courts and had to pay fines aggregating to $230, the penalties ranging from $1 to $10. The next day the police "bagged" 55 offenders.

• • •

One matter which was discussed at the mid-winter meeting of the National Association of Automobile Manufacturers on November 15th and 16th, at Detroit, Mich., was the possibility, in view of the continued rise in the price of petrol, to encourage the use of wood alcohol as a fuel for motors. The Association is considering the advisability of taking steps with a view to getting the ban on the promiscuous production of wood alcohol, imposed by the last session of Congress, removed. It was stated that this spirit could be produced commercially, and marketed at 10 cents per gallon.

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A Syracuse motor agent reports an incident which may be but the forerunner of a new fashion. Having sold a car to a New York artist he received a letter from the latter's wife requesting the car "to be painted a colour to match the shade of this bonnet." We are told that accompanying the order was "a dainty motoring bonnet of a delicate robin's egg blue and several sketches in colours to guide the body finishers."

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In Ohio considerable interest is being taken in the efforts of the Cleveland and Columbus Automobile Clubs to get the General Assembly to pass a law making it a penitentiary offence to steal a car; the punishment to be from one to seven years' imprisonment. A second proposal is for a law making it compulsory for all horse-drawn vehicles to carry both front and rear lights after dark. Several cities, including Columbus, have already made by-laws to this effect, but it is sought to make it a State law.

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Some of the "gentlemen" enjoying the hospitality of "Uncle Sam" at the Sing Sing prison, N.Y., have been employing their energies in the building of a motor car. An engine has been purchased for it, and it is proposed to sell the vehicle to the street cleaning department of New York City for $5,000 if it passes some stipulated tests.

Protracted patent litigation has been such a feature of the American motor industry that it is interesting to hear that the Supreme Court of the United States has framed a new set of equity rules which should serve to shorten such legal actions by about one-half on an average. It is stated that under the new rules the great Selden suit could have been disposed of in six months instead of dragging on for five years.

• • •

Having decided to adopt motor traction, the fire brigade authorities of Greater New York have gone ahead in no half-hearted fashion. For the present the old system will not be disturbed, but 45 new stations are being put up, some score of which are to be ready for occupancy early in the New Year, while the others will be completed at intervals during 1913. For the equipment of these new stations, 85 motor vehicles have been ordered at a cost of about $700,000. They include 31 combined chemical and hose wagons, 28 tractor-drawn steam pumps, and 26 escapes of various types. Should the new system prove successful the existing horse-drawn equipment will be gradually replaced.

• • •

At the annual general meeting of the American Automobile Association, held this year at Chicago on December 3rd, Laurens Enos, of Buffalo, was elected President, and Messrs. John A. Wilson, Dr. H. M. Rowe, R. W. Smith, F. L. Smith, and Asa Maine were elected Vice-Presidents in the order named. It was stated that there were now 451 clubs allied with the A.A.A., and 44 State Associations. It was decided to hold next year's general meeting at Richmond, Virginia.

• • •

A new regulation has just been made by the police of Philadelphia to the effect that cars fitted with two sets of side-lights must use only the less brilliant pair on streets with tramways and certain other busy thoroughfares.

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Chauffeur's Experiences

CHAUFFEURS are invited to ask questions in this column, and to reply to those raised by others. Notes of actual experiences on the road and in the garage are especially welcomed; also simple explanations and sketches of "dodges" for doing this or that everyday sort of "job." Payment at the regular rate will be made for everything published on this page, and as this section has been created more particularly to help members of the National Society of Chauffeurs, we hope they will do their best to maintain its interest at the highest possible level by writing to us as often as possible. We ask them also to make a point of giving their N.S.C. numbers. Letters should be written only on one side of each sheet of paper. Sketches, which may be in pencil and quite roughly drawn, should be on a separate sheet. Every sheet of paper should bear the sender's name. When referring to any paragraph on this page, please quote its number and title. Address: The AUTO., 44, St. Martin's Lane, Charing Cross, W.C.

111.

PREVENTING GUMMED-UP PISTONS IN COLD WEATHER.—During the cold season, starting-up in the morning, when the engine is quite cold, is never an easy job, however simple it may be during the day, once the motor has been warmed up. Carburation and ignition may be in ever so good order, but the difficulty on a frosty morning is to get the pistons to move at all, because the very low temperature has caused the oil to become "gummy," which makes the pistons adhere very tightly to the walls. Of course, everybody knows that an injection of paraffin or petrol will dissolve the thick oil and allow the pistons to move without much trouble. But isn't it curious that nine out of every ten chauffeurs who have a big engine with a high compression always try first to start her just as she is, and only resort to a dose of petrol or paraffin when the engine refuses to start? There is, however, a very easy and simple remedy that will successfully prevent gumming up of the lubricant, and I have found it always works. It simply consists in injecting a few drops of paraffin into the cylinders through the compression taps *in the evening* after the engine has finished its work, and while it is still warm. The pistons will then be found quite free in the morning.—*Percy.*

112.

ELECTRIC HORN AND DYNAMO LIGHTING SET.—In your issue of November 30th you were good enough to publish on your page of Chauffeurs' Experiences (letter No. 104), an enquiry of mine as to the possible or probable cause of the accumulator of my dynamo lighting set becoming rapidly exhausted after I had attempted to utilise the current for working an electric horn. I am not surprised that so far no replies have appeared, because reading the letter over again it appears to be a real puzzle. But, as you thought the problem worth publishing, it might perhaps interest some of your chauffeur readers to know its solution, which I have found in the meantime. I will readily grant that, as it turned out, it is not exactly a feather in my cap, but it may help another chauffeur out of a similar difficulty.

After writing you in November, I did not give up hunting for the fault, which I always thought must be in the wiring. On various days I connected the horn up again and used it, sometimes with very indifferent success. But, whether it made plenty of noise or gave forth only a weak "buzz," the effect on the battery invariably was the same; in the evening it always was exhausted, or very nearly so. The horn itself was brand new, so it never occurred to me that anything could be wrong with its "inside." But, the other day, when I had an afternoon to myself, I took it into my head to look inside the horn. When I took off the brass casing, I saw a sight for which I was not prepared, and which more than explained where all the current had gone to. All the inside was just one mass of rust; diaphragm, motor and vibrator were red with it, and the brass terminals were green all over. It was a wonder that the thing had worked at all. I must, however, say that, to my mind, it is quite impossible that such an amount of rust could have formed in the five weeks that I had the horn, and I am convinced that the larger part of it was already there when I bought it. Of course, I did the obvious thing, took every part out, gave it a good clean up with paraffin, and where this was not enough, with emery cloth. Before re-assembling I coated all the bare metal parts with vaseline. Since putting the horn back on the car it has worked perfectly, and without affecting the battery in the least.—*F. E. Lane.*

113.

BRIGHT METAL PARTS IN FOGGY WEATHER.—In reply to my inquiry which appeared under Chauffeurs' Experiences in your issue of November 2nd, you were good enough to send me a bottle of "Glonze," which is manufactured by Messrs. Herbert Terry and Sons, of Redditch. I gave the stuff a fair trial on my car, and this is what I found. At first it was a decided failure, because as soon as I put it on according to the directions it turned milky white and made the brass look dull. But at the Olympia Show I saw Messrs. Terry's representative, who told me that I must not put it on in the cold garage or while the brass parts are very cold.

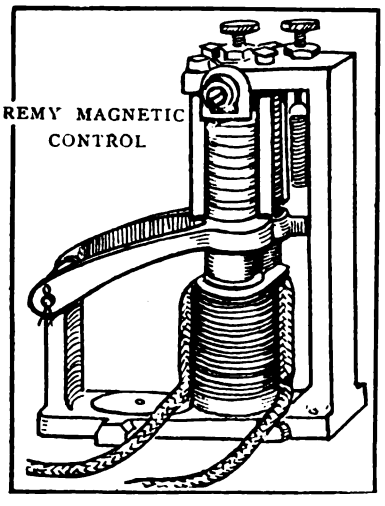
After this conversation, I used "Glonze" on my lamps and other brass fittings that I could easily take into the kitchen, because my garage is both cold and damp. Although after treatment the parts are not quite as bright as before, I must say they still looked smart, and passed muster under the governor's critical eyes. They kept in this condition for well over three weeks, during which I only rubbed them over with a "shammy" and a dry duster. The missis, however, got hold of the bottle, and tried it on some of the brasswork in the house with much better result. Since she treated the brass horn of a gramophone and a brass fender with it, she told me, the things have only been dusted, and they still look as if they had just been polished.

While the preparation has undoubtedly many points to recommend it for use on motor cars, I think failures could be prevented if the directions for use were elaborated to some extent.—*R. Thomas.*

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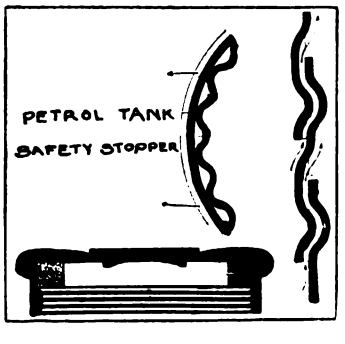
FOREIGN MISCELLANY.

In the Remy electric lighting system the method of regulating the output is ingenious and consists of varying the strength of the shunt field through the action of a magnetic regulator formed of an armature, a coil in which the armature operates, and a pile of carbon discs one upon the other. When the engine is idle, the pressure upon the carbon discs is such that they become virtually a solid conductor, permitting all the current to pass through the shunt field. As the speed of the dynamo armature increases, however, the electro-magnetic regulator, which is connected in series with the shunt field, decreases the pressure on the carbon discs, and as they loosen, under the action of a spring, their resistance becomes greater and the strength of the shunt field is decreased. In action, the regulator is automatic and compensates for engine speed fluctuations by maintaining the magnetic field of the dynamo constant so that the current output of the machine never exceeds eight amperes. The same device—it is mounted in the coil box on the dash where it is instantly accessible—also serves to disconnect the generator from the battery immediately the engine is stopped, in which case the lighting load automatically is taken up by the storage battery, which, in the lingo of electrical engineers, is "floated on the line."—*Motor World, N. Y.*

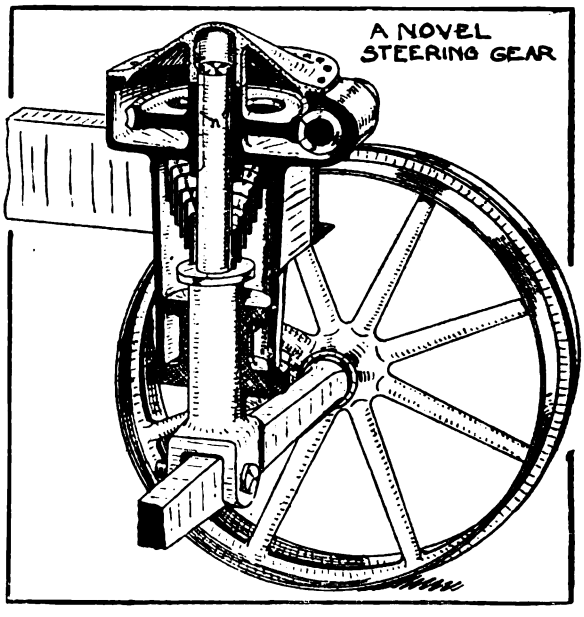


A safety stopper for petrol tanks.—This is a French invention in which corrugated metal plates are employed instead of the wire gauze often found in safety devices of this sort built on the Davy lamp principle. The tube, which dips into the liquid, is built up of a spiral strip of metal, the edges of which are corrugated and overlap as shown in the accompanying illustrations. This seems to afford longer cooling passages than in the case where gauze is used, and should, therefore, be a better protection.—*Omnia.*

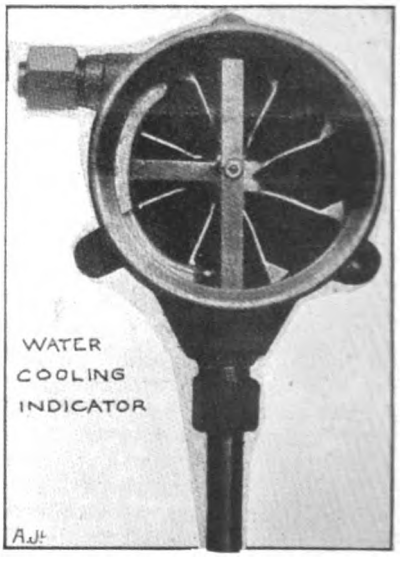




A novel steering gear.—Most of our readers are no doubt aware that traction engines and similar heavy vehicles are nearly always fitted with central pivot steering, the motion of the front axle being controlled by means of a chain wound on and off a drum actuated by a hand wheel. We illustrate herewith a central pivot steering gear which differs considerably from that usually employed. The steering is accomplished by means of a worm and worm wheel, the worm being set across the front of the vehicle and actuated through bevel gears from the hand wheel located on the driver's platform. It will be seen that the steering pivot is suspended by a volute spring, and this of course necessitates a sliding joint between it and the worm wheel, accomplished in this case by means of the splines shown at *n.*—*Allg. Automobil Ztng.*, Berlin ed.



A water circulation indicator is an instrument which every motorist would have welcomed with open arms ten years ago, but now this part of the engine so rarely gives trouble that we should be loth to introduce another complication in the various connections. The indicator is a German invention and can be used only where pump circulation is employed. It consists of a small water wheel enclosed in a glass chamber which also contains a thermometer to show the temperature of the water; the instrument is placed on the dash and is connected in parallel with the cylinder jackets.—*Automobil Welt.*



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ROAD NOTES.

COMMUNICATED by the A.A. and M.U. Road Department.

NORTH.

GREAT NORTH ROAD.—Full width of road under repair 7 miles north of Grantham; members are warned to drive with care through High Street and Watergate, as a cable is being laid down one side of the road.

LAKE DISTRICT.—*Kendal-Keswick Road.*—Improvements are still in hand at Ings between the 6th and 7th milestones, lights at night.

LANCASHIRE.—*Lytham-Blackpool Road.*—Full width being re-metalled opposite racecourse, roller at work, not protected at night.

Members are warned to drive carefully through Broughton village 3¾ miles north of Preston, also through Garstang 10¾ miles north of Preston.

YORKSHIRE.—*Wetherby-Harrogate Road.*—Repairs still in hand between the 2nd and 3rd milestones from Wetherby, full width.

Otley-Addingham Road.—Repairs in hand full width between the 5th and 6th milestones from Otley.

Leeds-Wetherby Road.—Under repair full width between the 7th and 8th milestones from Leeds.

EAST.

LONDON-YARMOUTH ROAD.—New water main being laid through the village of Ingatestone, watchman at night. Re-metalling half width on the Old London Road, Chelmsford, roller working. Re-metalling full width between Ardleigh and Colchester, roller working. The road between Kessingland and Lowestoft is in a heavy condition, and members are warned to drive slowly here.

Norwich-Cromer Road.—St. Faith's Bridge under repair. Temporary bridges at Hevingham and Ingworth.

Norwich-Yarmouth Road.—Loose stones in centre of road between the 5th and 6th milestones.

SOUTH.

BATH ROAD.—Under repair between Calcot and Thatcham between the 2nd and 3rd and 7th and 8th milestones from Reading. In bad condition between Twyford and Sonning. Slough High Street under repair for about 50 yards, half width; members are warned to drive slowly.

BRIGHTON ROAD.—Under repair and roller working between Kingswood and Merstham; between Reigate Station and Dorking road; in the main thoroughfare of Reigate, full width; between Woodhatch and Leigh; Woodhatch-Redhill; between Merstham and South Merstham; and on the Nutfield and Godstone road. Members are warned to drive with special care between Sutton and Reigate Hill, especially at Burgh Heath.

LONDON DISTRICT.—Members are warned to drive slowly in the Mitcham district on Saturdays and Sundays, as controls are worked from Tooting Junction Station, also down Mitcham Lane and Figg's Marsh, for cars proceeding in the Brighton direction during the morning. In the afternoon the controls are reversed and worked towards London, a control is also worked through the ten-mile limit. On Monday mornings special care is necessary, as in addition to the controls mentioned above, there is another worked from the top of Clay Pit Hill on the Sutton-Mitcham road just before entering Mitcham.

On account of timing operations, special care is necessary at Regent's Park Road, N.W.; near Church End Station, Finchley; Golder's Green; between Redcliffe Gardens and the Boltons, Earl's Court Road, S.W.; on the road that crosses Clapham Common from the top of Balham Hill to Battersea Rise; Victoria Embankment; Albany Gate, Regent's Park; Croydon; Purley; Morden; Sutton; Wimbledon and Ewell; Hounslow-Staines; Hounslow-Colnbrook; Sudbury tram terminus to Harrow Hill.

SOUTHAMPTON ROAD.—*Basingstoke District.*—Under repair and roller working between Mapledurwell and Basingstoke; full width in Tunworth Road, and between Overton and Whitchurch on the Salisbury road, no lights. Re-metalling full width on the Reading road between the 14th and 15th milestones. Foundations being laid on Shrubbs Hill between the 21st and 22nd milestones.

SURREY.—*Kingston-Leatherhead Road.*—Members are warned to slow down between Chessington and Hook as a control may be working.

Portsmouth Road.—Flashlight controls are likely to be working between Kingston and Esher.

Woking-Merrow Road.—Flooded at Burpham about a mile from the main road; alternative route *via* Send and Woking village.

Worthing Road.—Roller working at Epsom Common, lights at night.

Eastbourne Road.—Members are warned to drive slowly, as a control is likely to be working near Kenley Police Station and the Gas Works, Whyteleafe.

SUSSEX.—Members are warned to observe the ten-mile limit at Uckfield.

Pulborough District—Road is under repair and roller working between Pulborough Station and Stopham Bridge, one mile west of Pulborough, full width.

It is intended to repair the main roads between the following points:—Eridge-Crowborough; Cross in Hand-Burwash Common; Rye-Udimore; Northiam Station-Beckley Four Oaks; Beckley Four Oaks-Peasmarsh; Brightling-Woods Corner; John's Cross-Robertsbridge.

WEST.

SHREWSBURY DISTRICT.—*Hereford Road.*—Re-metalling full-width of road at Brown Hill, 10 miles from Shrewsbury.

BRISTOL-GLOUCESTER ROAD.—Coaley Parish, between the 10th and 11th milestones from Gloucester, roller working, tarring whole width, clear at night.

CHELTENHAM OXFORD ROAD.—Under repair about 2 miles from Cheltenham Parish, whole width, lights at night.

Bridge being rebuilt at Andoversford, half width of road closed to traffic, lights at night.

EXETER-BODMIN ROAD.—The road is in bad condition for a distance of 4 miles across Bodmin Moors; from the 5th to the 9th milestones 5 miles east of Bodmin, and 13 miles west of Launceston.

EXETER-CREDITON ROAD.—The road 1 mile north-west of Exeter is under repair for about 150 yards, half width. Under repair 1 mile east of Crediton full width. The work will be carried on through the town, and will take six weeks. Special care is necessary.

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A.A. AND M.U. NOTES.

Communicated by the Secretary from Fanum House.

Christmas Arrangements.—Patrols.—Will members kindly note that, as in past years, no patrols will be on duty on Christmas Day. They will, however, return to their duties on Boxing Day.

Offices.—The head offices and all branch offices will be closed on Christmas day and Boxing Day.

Important Road Note.—The Association has been informed that the attitude of the Somersetshire authorities towards motorists is most reasonable, and that, provided there are no more serious complaints regarding fast driving, no controls will be instituted. The continuance of these conditions depends upon the amount of care taken in driving cars through the villages, and members are earnestly asked not to disregard this warning.

Side Lights on Traction Engines.—The Association has taken up a complaint by a local member that traction engines and motor lorries using the Welsh roads are not carrying their lights on the extreme right, and are thereby a source of danger to other road-users. The aid of the police authorities has been enlisted in enforcing the observance of the regulations relating to vehicle lights by traction engine and motor lorry users in the district complained of.

Speed Limits.—Epsom.—The County Council of Surrey have made application for a ten miles per hour speed limit for a portion of High Street, Epsom. Objections must be lodged by the 30th inst., and members able to afford useful information in readiness for the forthcoming inquiry are invited to send in their views to the secretary as quickly as possible.

Direction Posts—South Carnarvonshire.—For several months the Association has been carefully collecting information regarding the paucity of direction posts in South Carnarvonshire. Owing to the very rough condition of many of the roads, direction signs to the better class roads are very necessary to tourists unfamiliar with the country, and the Association hopes shortly to be able to report improved road conditions in this respect.

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Cheerful Entries for Van Parade.

WE hope the Committee of the Commercial Motor Users Association are not superstitious, but it must have been somewhat disconcerting to the Secretary to find that the first entry for the next parade, which is fixed for Whit Monday of next year, was a motor hearse belonging to Messrs. J. H. Kenyon, Ltd., and it should make an impressive figure at the head of the parade especially as No. 2 is a motor pantechnicon. The first entry for the team prize is a fleet of six vehicles from Messrs. Harrods.

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THE GRAND PRIX AMIENS COURSE, 1913.—Two corners—at Longueau (top view) and at Moreuil—to be negotiated by the competitors and ——

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RACES, RECORDS, AND TRIALS.

R.A.C. and Rotary Engines, &c.

THE suggestion by Mr. W. Worby Beaumont that the Club should offer a prize for the best practically useful rotary or turbine internal combustion engine entered for trial under R.A.C. regulations in 1915, has been postponed at Mr. Beaumont's request.

New Motor Cycle Records.

ON the 17th inst., at Brooklands, S. L. Bailey, on his 2¾-h.p. Douglas, improved on the records for this class of machine. His time for the flying kilometre was 30·80 secs., equal to a speed of 72·63 m.p.h., while for the mile his time was 51·40 secs., and the speed 70·04 m.p.h. The records previously stood to the credit of Harry Martin, his speeds being 68·28 and 67·85 m.p.h. respectively.

Swedish Motor Trials.

MOTORING in Sweden owes a good deal to the Annual Winter Reliability Trials of the Royal Swedish Automobile Club, which provide a test for motor cars which is not easily equalled elsewhere. For 1913 the course will be from Stockholm–Örebro–Filipstad–Karlstad–Göteborg–Jonköping–Södertelje–Stockholm, the start to take place in Stockholm on Feb. 23rd. Entries should be sent in to the Royal Swedish Automobile Club, Fenixpalatset, Stockholm, before Jan. 24th. Late entries will be received until Feb. 10th. The entrance fee is 150 kr. for each car.

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CURRENT ITEMS OF INTEREST.

Baron de Zuylen's Son Killed.

THE sympathy of all motordom will be with Baron de Zuylen de Nyevelt in the loss of his son as the result of a fatal motoring accident in Belgium. While driving from Brussels to Antwerp, one of the wheels of the car sank into a rut and caused the vehicle to overturn, the young Baron being instantly killed. The other three occupants of the car, however, escaped with their lives, but were seriously injured.

L.C.C. Still After Speed Limits.

IN spite of the many rebuffs they have had, the London County Council still hanker after speed limits. It is now proposed to apply for an eight mile limit in Green Street, Bethnal Green, a place where, owing to the congestion of costers' stalls, &c., it is practically impossible to proceed at much more than walking pace at any time.

Home and Foreign Petrol.

IN reply to a question in the House of Commons the other day, Mr. Lloyd George said that in the last financial year the amount of petrol imported was 60,304,963 gallons, and the quantity home made was 1,340,805 gallons.

More Speed Limits at Putney.

As the result of the local enquiry recently held, the Local Government Board has now decided to grant an Order restricting the speed of motor vehicles in High Street, Putney, and along Putney Bridge to 10 miles an hour.



—a bit of typical "straight" after the Longueau corner on the Grand Prix Amiens Course, 1913.

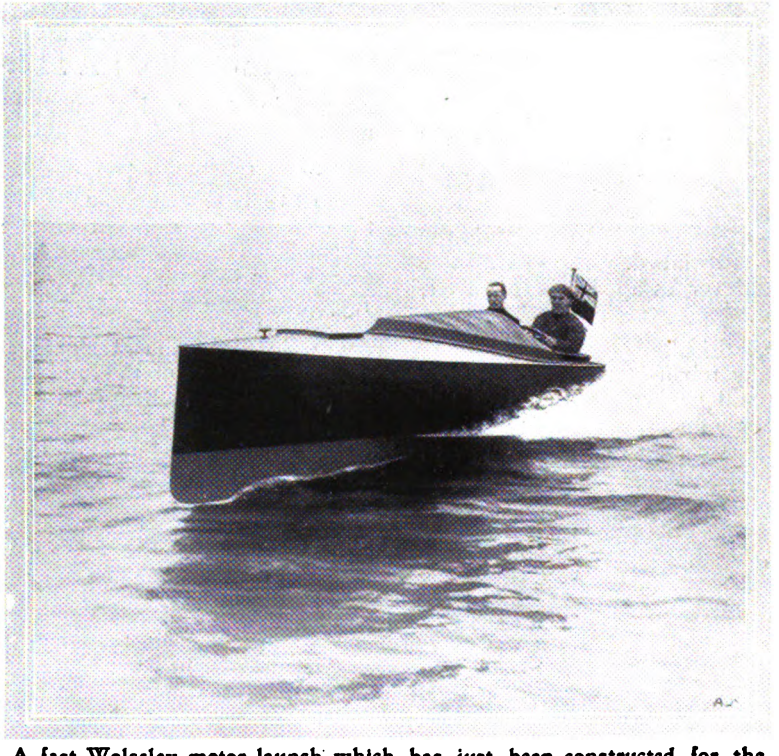
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Motors for Australian P.O.

INCREASING use is being made of the motor car by the Australian postal authorities, and tenders are now being invited for three more petrol cars. Those who wish to tender may obtain full particulars from the High Commissioner for the Commonwealth of Australia, 72, Victoria Street, S.W.

The Warrington and Preston Roads.

THE terrors of the usual road between Warrington and Preston with its miles of tramlines and congested traffic, quite apart from the unlovely scenery, some time ago led the R.A.C. to map out an alternative road, nearly all of which is very good, free from traffic difficulties, and passes through pleasant country. This alternative road is now being signposted between a point south of Warrington and Preston, so that every motorist will be able to have the advantage of the Club's experience. Of course, it is impossible to avoid travelling through Warrington, but in doing so it is not necessary to drive through the centre of the town with its narrow streets and congested traffic, and in carrying out this work the Club is signposting an alternative road through the town which is almost free from traffic.



A fast Wolseley motor launch which has just been constructed for the Duke of Westminster, and which will be used on the large lake adjoining the Duke's property at Ninizan on the west coast of France.

Cab Rank Telephones in Hamburg.

THE idea of an open air telephone at cab ranks is being recognised in Germany as a good scheme, and at a taxicab-rank in Hamburg a post has been fitted up with a loud-speaking telephone, which renders the use of any ear pieces unnecessary. Those in want of a cab simply ring up the cab-rank, and shout their order through, and it will be heard by the drivers who are waiting.

Motor Cars for Chile.

SOME useful information as to desirable points in design of cars intended for use in Chile, and that part of South America, is sent by a correspondent of the R.A.C. He advocates the use of the chain drive, except in the case of cars which will be employed only in towns, and he lays stress for the necessity of at least 15 inches ground clearance, owing to the prevalence of very deep ruts caused by the ox-wagons. It is suggested that the petrol tank, when it is situated at the rear of the chassis, should be constructed with a double bottom, so that a driver may not be stranded in the event of the outer shell being damaged by any exceptional projection on the road.

The Scientific Testing of Oil.

A MATTER of very great interest to automobile manufacturers is the introduction of a special oil testing machine by the well-known Stern Sonneborn Oil Co., of Royal London House, Finsbury Square. The apparatus in question is an elaborate but very complete kind, for it records automatically many data that otherwise would involve much complication to collect by individual observers. There is a means of regulating the temperature, or altering the speed, of changing the load and of examining the state of the oil after it has been for a given length of time in contact with the friction surfaces. All these things, it is claimed, can be done expeditiously with the Sternol Oil testing machine, and inasmuch as lubricant may justly be said to be the life fluid of any automobile mechanism, it follows that those who make cars should turn their very serious attention to the possibility of learning more about oil by the aid of the Sternol apparatus. At least, it behoves every manufacturer to make enquiries for himself, which the company in question will be only too ready to answer with actual examples of oils that they have had under test.

An Acceptable Present.

MOST motorists like to keep an accurate record of their expenses in connection with their car, but a good many find some difficulty in arranging the accounts. It was for this reason that Mr. Charles Jarrott devised his record book and an announcement that a new edition has just been published reminds us that it forms a very useful present at this season of the year. This book is on an entirely different system to the many other publications for the purposes which have been put forth, especially in the way that it provides for the recording of the smaller, but still most important, details of expenditure. Bound in cloth the price is 5s., and it is obtainable from Messrs. C. D. Clayton, Ltd., 52, Shaftesbury Avenue, W., or Messrs. Jarrott, Ltd., 35, Sackville Street, London, W.

No R.A.C. Beagles.

MEMBERS of the Royal Automobile Club can hardly complain of the facilities provided at the Club House in Pall Mall for indulging their sporting proclivities. A suggestion has, however, been made that a harrier or beagle pack should be started, but the Club cannot see its way to adopt the idea, at all events, at the present time. A garage would be much more useful.

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Hurrying up Rebates.

HAVING received several complaints from medical men, and owners of commercial vehicles and motor boats, of the delay in obtaining repayment of the rebate of petrol duty to which they are entitled, the Scottish A.C. has been in communication with the Customs and Excise Authorities, and to such effect that one complainer has had the rebates paid to him within three days of application, whereas it formerly took nearer three months to get them.

"A Man and a Motor,"

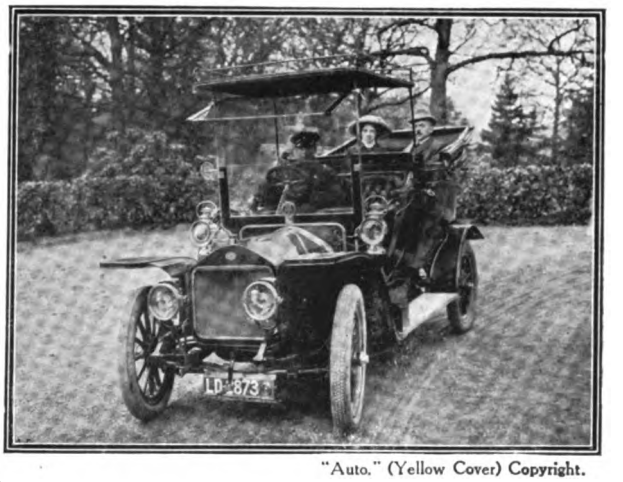
AND subsequently a wife. Although Mr. R. W. Bradshaw Needham's book has run through a good many editions since it was first published, it is still as popular as ever, and no doubt the new edition at sixpence, which has just been issued, will meet with as great a reception as those which have preceded it. The adventures of Laurence and his motor car read as freshly as they did in the first edition, and provoke a continuous ripple of laughter from start to finish. The book is published by the St. Clement's Publishing Co., Portugal Street, W.C.

Perrier Motor Car Map.

THE useful wall-map for motorists issued by Messrs. Perrier has now been published in another form, intended for use on a car when touring. The map is divided into thirteen sections, which are printed on cards and enclosed in a waterproof case about 15 ins. by 10 ins., the front of which is transparent, so that the map can be consulted in any kind of weather, and whatever the state of the hands, without being soiled. The maps are changed through an opening in the top, which is protected by a flap fastened with snap buttons. The new arrangement costs 6*s*., and it can be obtained from Messrs. Perrier, Ltd., 45 and 47, Wigmore Street, or Messrs. Geo. Philip and Sons, 32, Fleet Street, E.C., who have produced the map.

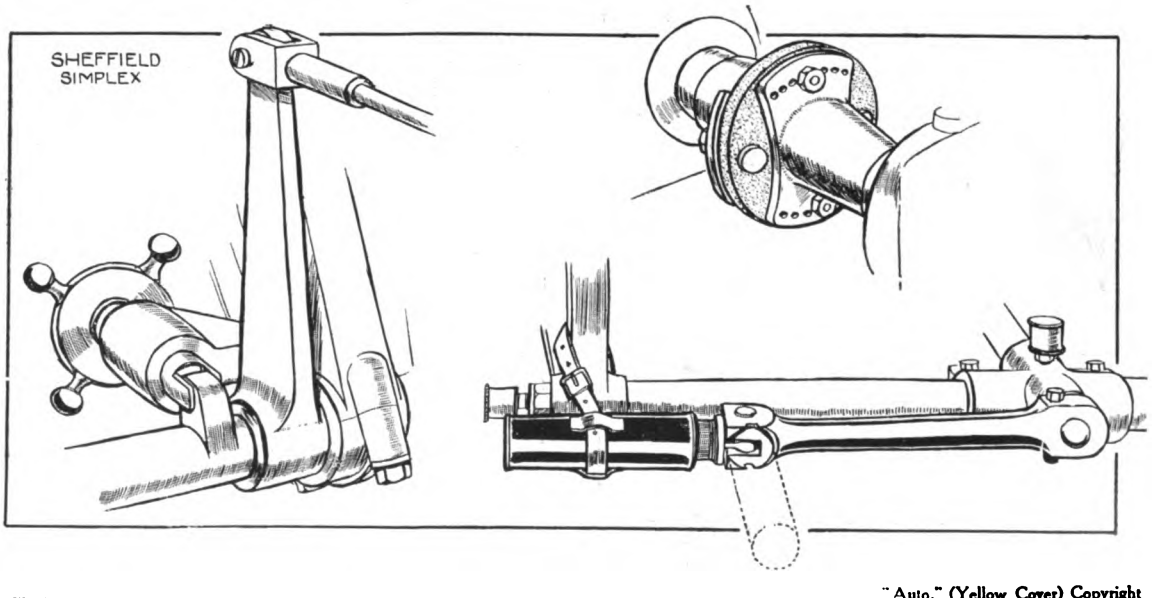
The Elixir of Life

THE secret is out, and we know why Sir Thomas Crosby, who recently completed his year of office as Lord Mayor of London, contrived, in spite of his four score and two years, to get through as much work as many a man of but half his age would consider more than enough. The recipe is simple; no sooner was his work at the Mansion House over than London's Chief Citizen would, when circumstances permitted, have been seen mounting to the top of a motor 'bus, in order to indulge in a penny ride to Charing Cross; then a quiet stroll in St. James's Park, or along the Mall, and another 'bus ride home. On Sundays the dose was a little stronger—often Sir Thomas spent as much as ninepence on a ride to Richmond or Hampton Court, and a healthier or more enjoyable holiday he wants somebody to tell him of. But, all the same, for the longer rides we have heard it suggested that an air cushion would not be amiss for outside riders. Evidently the L.G.O.C. has taken note of the suggestion, as we observe that a few 'buses have been fitted with cushions, which are attached to the seats by brass keys, so that they can be reversed in wet weather.



"Auto." (Yellow Cover) Copyright.

Mr. Thomas Farrow, the Chairman and Managing Director of Farrow's Bank, Ltd., and his daughter in their Wolseley landaulette, which, since its acquisition in 1910, has covered round about 70,000 miles, mostly in an exceptionally hilly district. Mr. Farrow's testimonial to the car is indeed a valuable one, he writing that during the car's use "neither the engine nor any other part of the mechanism has broken down, or needed any special attention in the way of repair, although I have, of course, had the car overhauled, as is customary with careful motorists, at the commencement of each season."



"Auto." (Yellow Cover) Copyright

SHEFFIELD-SIMPLEX DETAILS.—On the left is the brake adjustment, on the right is the hinged starting handle, and above it is the leather coupling in the magneto shaft.

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The King's Indian orderly officers watching the flying demonstrations at Hendon during the past season.

Rules of Golf.

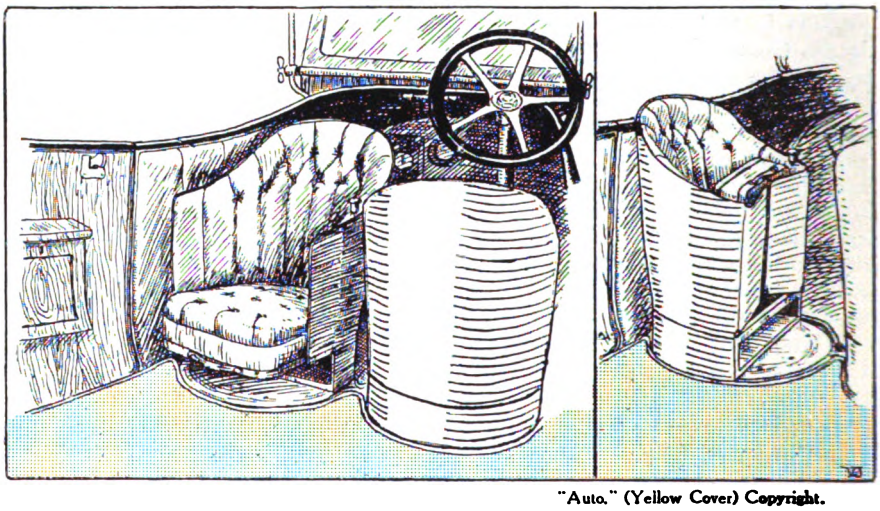
IN view of the important changes made by the Royal and Ancient Golf Club of St Andrews in the rules of the game and also their approval of a series of rules for bogey competitition, the Royal Insurance Co., 1, North John Street, Liverpool, have issued a revised edition of their little booklet, giving the latest rules. An important feature of the publication is a comprehensive index giving reference both to the number of the rule and also the page on which it appears. Any of our readers may obtain a copy by application to the Royal Insurance Co., as above.

Sparking-Plugs.

Too often the sparking-plug is one of those fittings on a car which gets very little thought or attention, although the proper running of the engine depends to an important extent upon its work. Those who would like to know something more about these fittings should make a point of writing to Messrs. Lodge Bros. and Co., Wrentham Street, Birmingham, for a little brochure on the design, choice, and use of the sparking-plug which has been written by Mr. Alec M. Lodge. It gives a deal of information which will, no doubt, be new to many of our readers, and should prove very helpful to them.

Artistic Catalogues.

THE important part which the coachwork plays nowadays in the selling of a motor car is emphasised by the fact that the catalogues of the leading makers now contain illustrations of various types of bodywork supplied, and not only so, but many firms find it to their advantage to have these illustrations printed in colour so that their clients may get a better idea of the vehicle. In the latest Metallurgique catalogue the various types of coachwork produced by Van den Plas are shown in colour, and the artistic nature of the catalogue is also enhanced by a couple of plates, one by Cyrus Cuneo and the other by Mr. H. R. Millar. Another very artistic catalogue is that dealing with the 15–20-h.p. Fiat, which has a large number of illustrations in colour of the different types of complete car usually supplied.



"Auto." (Yellow Cover) Copyright.

The pivoted bucket seats in the smart Grosvenor touring body fitted to one of the Chenard-Walcker cars shown at Olympia.



Mr. Andrew Soutar, the popular novelist, with his son, Mrs. Soutar, &c., in their De Dion car, of which Mr. Soutar's praises are very high. Mr. Soutar's works have a charm of their own, and he makes no secret of his being largely inspired for his plots whilst steering his car through the charming roads and lanes round about his home at Seaford, Sussex.

Motor Roads to London.

THE latest addition of the route book bearing the above title published by the Mitchell Motor Works and Garage, is an excellent little volume. It has been revised and brought up to date and in the 961 routes which are given it is claimed it now contains almost every available motor road in Great Britain, while for the stranger there is a useful map showing the ways into town. One good feature of the book is a complete index, in which the references to main road routes are printed in heavy type so that it is easy to find them. The printing generally is bold, while the book is bound in a waterproof cover so that it is not greatly affected by a shower of rain. The price is 1s. 6d.

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For Garages Open Sunday, see "Auto." Guide every week.
For Sunday Golf, see "Auto." Guide every week.
For all Cars and Addresses see Directory weekly.

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THE PROGRESS OF AUTOMOBILISM.

Points from the Presidential Address of Mr. T. B. BROWNE to the Institution of Automobile Engineers.

IN London alone there were licensed during the year ending August 31st last 2,510 motor omnibuses as against only 533 drawn by horses; the number of motor cabs licensed for the same period was 7,860, with only 672 hansoms and 1,982 four-wheeled horse cabs.

That the cost of running commercial motor vehicles is being continually reduced, especially where efficient organisation exists for their maintenance in large numbers, is shown by the fact that one of the largest motor omnibus companies has now reduced its running costs to about 7½*d.* per car mile, whereas when I read a paper on the subject of running costs before this Institution in February, 1910, the equivalent figure was about 9*d.*, so that the motor omnibus is now proving a very formidable competitor to the electric tramcar.

In the recent army manœuvres held on a large scale in this country, the automobile proved itself of the greatest advantage. The invaders and defenders, each consisting of one cavalry division and two infantry divisions, were furnished with approximately 110 petrol vehicles and 36 steam vehicles, which, working in conjunction with the railways, undertook the whole of the supplies to the armies. Where roads are available, the gain by the use of automobiles over horses for this purpose is enormous, as it can easily be seen that where the latter cover forty miles in two days the same distance would be covered in four hours by the former. It takes four motor lorries to carry one day's supplies for a brigade of about 4,000 men, and each lorry takes a 3-ton load, which is equivalent to three horse wagons. Moreover, the motor vehicles take up only two-thirds of the road-space required for the horse vehicles.

It is very difficult to arrive at an exact estimate as to the number of motor vehicles running in this country, as there is at present no arrangement made for striking off the register those vehicles which are worn out, destroyed by fire, &c., but the total numbers registered for Great Britain and Ireland have been given as follows:—

November, 1910	Motor cars	124,860
	Motor cycles	86,414
	Heavy motor vehicles ...	7,406
November, 1911	Motor cars	150,697
	Motor cycles	106,366
	Heavy motor vehicles ...	9,195

As nearly a year has elapsed since the last figures, the approximate number of registrations at the present time might be estimated as follows:—

Motor cars	170,000
Motor cycles...	130,000
Heavy motor vehicles	12,000

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PUBLICATIONS RECEIVED.

Catalogues.

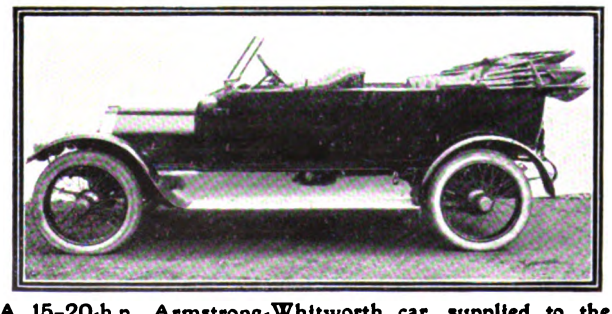
Austin Cars: 10-h.p. and 15-h.p. Models.—The Austin Motor Co., Ltd., Longbridge Works, Northfield, Birmingham.

Austin Cars: Chassis Department.—The Austin Motor Co., Ltd., Longbridge Works, Northfield, Birmingham.

The 25-h.p. Talbot Car.—Clement Talbot, Ltd., Barlby Road, Ladbroke Grove, W.

Photographic Papers, Plates, Chemicals and Apparatus.—John J. Griffin and Sons, Ltd., Kemble Street Corner, Kingsway, W.C.

Motor Car Extincteurs. William Miller (Glasgow), Ltd., 163, Hope Street, Glasgow.



A 15-20-h.p. Armstrong-Whitworth car supplied to the Admiralty for service at Sheerness. The coachwork is also the work of the firm at their coachbuilding works at Manchester, and she is fitted up with C.A.V. lighting set, Elliott speedometer, &c.

NEW COMPANIES REGISTERED.

British "Orto" Tyres, Ltd., Broad Street House, New Broad Street, E.C.—Capital £55,000, in 5*s.* shares (120,000 6 per cent. participating pref.). Under agreement with the Barkatyre Synd., Ltd. First directors, J. S. Critchley, F. W. Kerr, and G. P. Lee.

Motor Rearguard Co., Ltd., 133, St. Vincent Street, Glasgow.—Capital £20,000, in £1 shares. Manufacturers of devices and accessories for motor road vehicles. Under agreement with Rearguard Manufacturing Co., Ltd. (in liquidation), and C. T. Burns and others.

Private Companies.

Belhaven, Ltd., Belhaven Works, Wishaw.—Capital £35,000, in £1 shares (10,000 pref.). Acquiring business and certain assets of Belhaven Engineering and Motor Works, Wishaw.

Watson and Sims, Ltd.—Capital £5,000 (400 £5 Founders' and 300 £10 ordinary). Acquiring business of engineers and motor experts carried on by D. L. Watson and M. S. Sims at City Garage, Corporation Street, Rochester, as Watson and Sims.

Wolverhampton Motor Services, Ltd., 18, Darlington Street, Wolverhampton.—Capital £6,000 in £1 shares. First directors, F. C. Bishop and H. G. Townsend.

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ROUNDABOUT NOTES.

MANY thanks to Mr. Robert W. Coan for a very fine perpetua calendar which is a splendid example of the sand cast aluminium work turned out by this firm at their works at 219, Goswell Road, London, E.C. The subject of the picture, which is cast in relief, is "The Squire's Xmas Box." At the beginning of last year Mr. Coan had the address book, containing the names of all his friends, taken, so if any of them fail to receive his annual reminder of the season of goodwill, he hopes they will drop him a line.

ONE of the most successful motor cycles during the past season has been the 3½-h.p. Brough, and for the coming season a twin-cylinder 6-h.p. engine has been introduced. The firm are also making a cycle car of 8-h.p., which is sold at £100. Full particulars can be obtained from the new catalogue just issued by W. E. Brough and Co., Basford, Nottingham.

AN 8-h.p. car is being placed on the market by Messrs. Barimar, Ltd., 10, Poland Street, Oxford Street, London, W. The equipment includes flush-sided two-seated body, scuttle-dash, hood and side curtains, wind-screen, detachable wire wheels, spare wheel and tyre, electric side and tail lamps, horn and tools, and the price is £135 complete. We hope to give further particulars of this little car in an early issue, but meanwhile details can be obtained from Messrs. Barimar, Ltd., on application.

INCREASING business has also caused Messrs. Lodge Bros. and Co., to find bigger premises, and they have therefore built large offices in front of their works in Wrentham Street, Bristol Road, Birmingham. The move will be made during the Christmas holidays, and on and after December 24th all communications should be addressed to the new offices, Wrentham Street, Birmingham.

SOME twelve months ago Mr. G. H. Smith bought the interest of Mr. W. H. Dorey in the firm of Messrs. G. H. Smith and W. H. Dorey, Ltd., and by permission of the Board of Trade, the title of the firm has now been altered to G. H. Smith and Co. (London), Ltd. The address is still 14A, Great Marlborough Street, W.

WE learn that Messrs. Joseph Sankey and Sons, Ltd., of Hadley, Salop, have taken over the building of the Windham patent detachable and interchangeable bodies. In future all enquiries, &c., regarding these matters must be addressed to that firm.

FROM Weldings, Ltd., of 235, Great Ancoats Street, Manchester, comes a calendar for 1913. The picture of "Kathleen" which forms the centre portion is a delightfully soft bit of colouring, and is worthy a frame. Our readers can no doubt obtain a copy by writing to the firm as above.

THE greatly increased demand for Avon tyres which has occasioned the recent opening of several branches at convenient provincial centres has necessitated the removal of their London depôt at 35, Long Acre, to larger showrooms and warehouses at 19, Newman Street, Oxford Street, W. A large stock of all their specialities will be kept to give immediate delivery. A staff of fitters is employed at the new premises and customers' cars are fitted with Avon tyres free of charge.

MR. G. A. MARSH, who for so many years has been the secretary of the Midland Rubber Co., at Birmingham, has resigned his position, and will take over the management of the tyre department of Messrs. Redfern's Rubber Works, Ltd., of Hyde, on January 1st, 1913.

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ANOTHER exceptionally artistic catalogue is that published by Messrs. Seabrook Bros., 57, Great Eastern Street, in the interests of R.M.C. cars. This also gives, in addition to a full and finely illustrated description of the car, some details of the works in which they are made and of the firm which is responsible for their production.

THE 11-h.p. Humber car has proved to be especially popular amongst Irish motorists, and appears to be well suited to the work of driving over the roughest Irish roads. From January to April one of these cars toured all round Ireland, covering a total distance of 6,378 miles. A booklet has just been published by the firm, containing a large number of experiences of various Irish users of this model.

FROM Charlesworth Bodies, Ltd., of Much Park Street, Coventry, we have received a book giving illustrations of a very wide range of bodies, suitable for mounting on various types of chassis. They range from smart taxi-cabs and cycle cars to elegant limousines and luxurious saloons. Those who are in the market for coachwork should write for a copy of this book.

AN extraordinarily wide assortment of fitments for motor cars are included in the catalogue of "Enots" specialities just issued by Messrs. Benton and Stone, of Bracebridge Street, Birmingham. Lubricators, tyre pumps, petrol fillers, shock absorbers, valves, &c., for use on cars, cycles and boats are included, while a special line is a varied asssortment of mascots, all very nicely modelled and beautifully finished.

BRITISH PATENTS.

Specifications Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

25,508. November 15th, 1911. Improvements in or relating to Piston Rings and like Contrivances for Providing Frictionally-Contacting Wearing or Bearing Surfaces between the Moving and Relatively Stationary Parts of a Motor, Pump, or other Mechanism. William Love, 42, Claremont Square, N., and E. Eugene-Brown, 19, Eardley Road, Streatham, S.W.—This invention has for its object to provide a combination of slit-rings to secure tightness of a piston in its cylinder. A cast-iron ring, bored, turned, and faced in the usual way, left slightly larger than the bore of the cylinder it is to fit, is sawn or otherwise slit at equal intervals outwardly and away from the axis for about three-quarters of its thickness from the inside. It is then further and similarly slit from the outside towards the axis, but so that the slits do not meet but are alternate, passing one another or overlapping for about half their own length. These slits need not necessarily be parallel with the axis, but may be oblique thereto, but are parallel to one another. To diminish the risk of fracture by extension, the slits may usefully terminate in drilled holes. For use as piston-rings in an explosion engine a good combination is obtained by placing two of the jointless rings one slit radially from the interior and from the exterior, and with the slits of the one staggered to the slits of the other together with a ring of the second description, viz., that which is obliquely cut to ensure the lateral fit of the rings in the containing-groove. Fig. 1 shows a piston-ring, A, with the slits, C, cut radially from the outside, and the slits, D, cut radially from the inside. These slits may be cut parallel to the axis, or may be cut at an angle, or obliquely thereto, as shown in Fig. 2, which is a sectional view through E, E, Fig. 1, where two similarly slit-rings are kept in position by the pins, G, so that the slits of one ring meeting the solid portion of the other secure continuity of material between the rings. Fig. 3 is an enlarged view of the slits of Fig. 1.—November 27th, 1912.

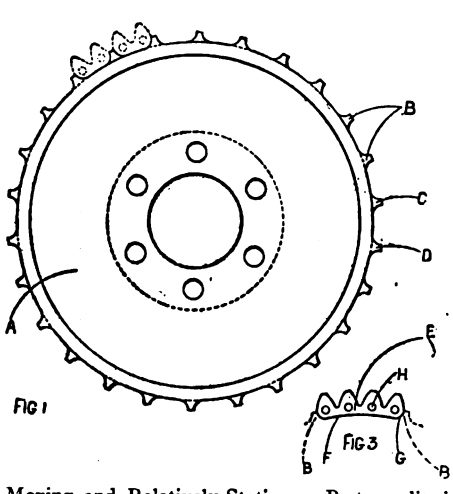


FIG 1

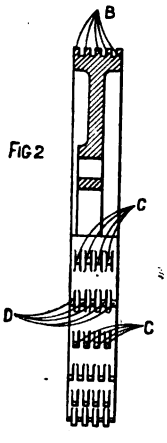


FIG 2

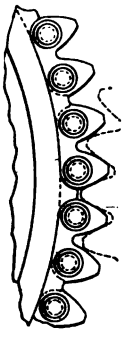
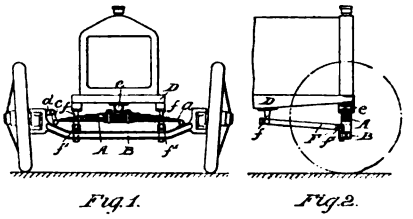

FIG 8

FIG 3

25,421. November 15th, 1911. Improvements in Means of Supporting Frames of Automobiles from the Front Road-wheels. The Wolseley Tool and Motor Car Co., Ltd., A. A. Remington and A. J. Rowledge, all of Adderley Park, Birmingham.—This invention has for its main object to support the frame of an automobile from the front road-wheels in an improved manner which does not interfere with the freedom of the frame to roll, and leaves the front wheels entirely free to yield vertically, substantially independently of one another, under irregularitie of the road. Each front wheel is mounted upon a short axle, which is quite separate from the axle of the other wheel, and can rise and fall independently thereof, and is spaced away from the corresponding side of the frame by a pair of substantially parallel members. Fig. 1 is a front elevation. A is the front end of a motor car frame, B B are the steering-wheels, *b b* are the inner ends of short (or stub) axles, around which the wheels, B, revolve. The inner end, *b*, of each axle is connected with the corresponding side of the frame by means of a pair of parallel links, *c*, of equal length, one above the other, which connect between lugs, c^2, of the axle and lugs, c^1, of the frame. D is an inverted semi-elliptic spring which runs transversely beneath the frame, and is pivotally connected at its middle with the frame by means of the pivot-pin, *e*, which is in position midway between the sides of the frame. The ends of the spring are connected by means of links, *d*, with the lower lugs of the axles. The wheel axles are connected with the frame through the medium of pairs of parallel links, and the transverse spring, and the links, *d*. The frame is free to roll at its forward end about the axis of the pin, *e*, without materially affecting the load on the wheels, B; and either of these wheels, in rising over an obstruction, lifts the front end of the frame to a comparatively small extent, because, even if the spring, D, were a rigid bar, the frame would be lifted only half the height to which the wheel rises, and this lift is considerably reduced, owing to the elasticity of the spring.—November 27th, 1912.


Fig.1. Fig.2.

Patent Specifications Published.

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m = motors.

Applied for in 1911.

Published December 27th, 1912.

24,295. G. SCHWAGER. Shock absorber.
26,698. G. W. HELDAM. Resilient tyres.
27,065. T. H. PARKER. Control and supply of mixture to engines.
27,073. ALBION MOTOR CAR CO. AND T. B. MURRAY. Carburettors.
27,335. W. C. GOBBETT. Non-skidding tyres.
27,398. F. EDWIN AND E. J. SMALLPAGE. Carburettors.
27,578. F. WILSON. Automobiles.
28,461. C. W. BUNN. Hoods.

Applied for in 1912.

Published December 27th, 1912.

164. C. H. RICHARDSON. Mud-guards for motor 'buses, &c.
563. A. J. DRAKE. Valves.
983. SOC. ANON. PANHARD AND LEVASSOR. Variable-speed gear.
4,628. W. HALL AND E. WARREN. Inflating pneumatic tyres while wheels are revolving.
7,155. H. M. GENESE AND PETO AND RADFORD, LTD. Clutches.
7,451. S. E. AND P. E. PAGE. Resilient wheels.
7,881. A. SHERWOOD. Resilient wheels.
10,702. E. J. M. MADERO. Rotary engine.
12,379. R. BOSCH. Timing devices for ignition.
14,829. P. STOLTZ. I.C. engines.
21,091. C. FRIEDERICH. Resilient tyres.

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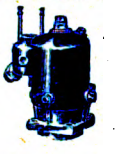
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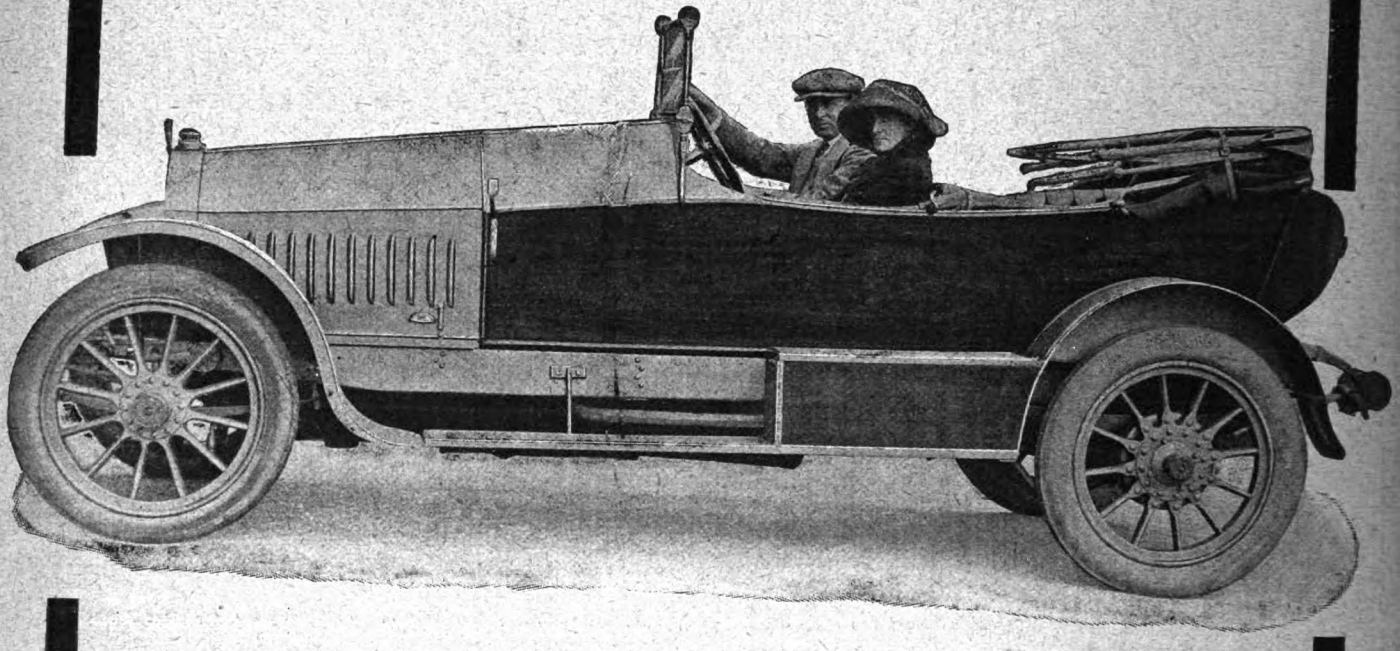
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The AUTO

-Motor Journal

"Yellow Cover"

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper]

No. 601. (No. 28. Vol. XVII.) JULY 13, 1912. (1d. Weekly. (Art Paper, 3d.)) (Edition).

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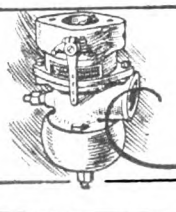
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17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper]

No. 606. (No. 33. VOL. XVII.) AUGUST 17, 1912. (1d. Weekly. Art Paper, 3d.) (EDITION).

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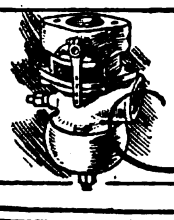
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AUG 17 1912

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17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper]

No. 606. (No. 33. Vol. XVII.) AUGUST 17, 1912. (1d. Weekly. Art Paper, 3d.) (Edition).

THE ECONOMICAL CAR.

CHENARD & WALCKER

London Branch: 174 & 176, GREAT PORTLAND STREET, W.

'Phones: 1290 MAYFAIR. Wires: "AUTOCHENAR, LONDON."

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Works and Offices—99, Ladbroke Rd., Notting Hill, London, W.

London Agents:—Messrs. BYROM & CO., 85, Gt. Portland St., Oxford St., W.
Manchester Agents:—Messrs. WILLIAM MYCOCK & CO., St. Mary's St., Deansgate.
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HISPANO SUIZA

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Telegrams: "Peugeot, London." Telephone: 871 Kensington.

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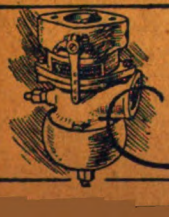
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who will save you all trouble by supplying a suitable Car and deliver same properly tuned up ready for the road.

Any make of Car tuned up and adjusted under our supervision in our works. Excellent garage accommodation.
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TOURING IS *NOT* TIRING

IF YOUR CAR IS A DAIMLER.

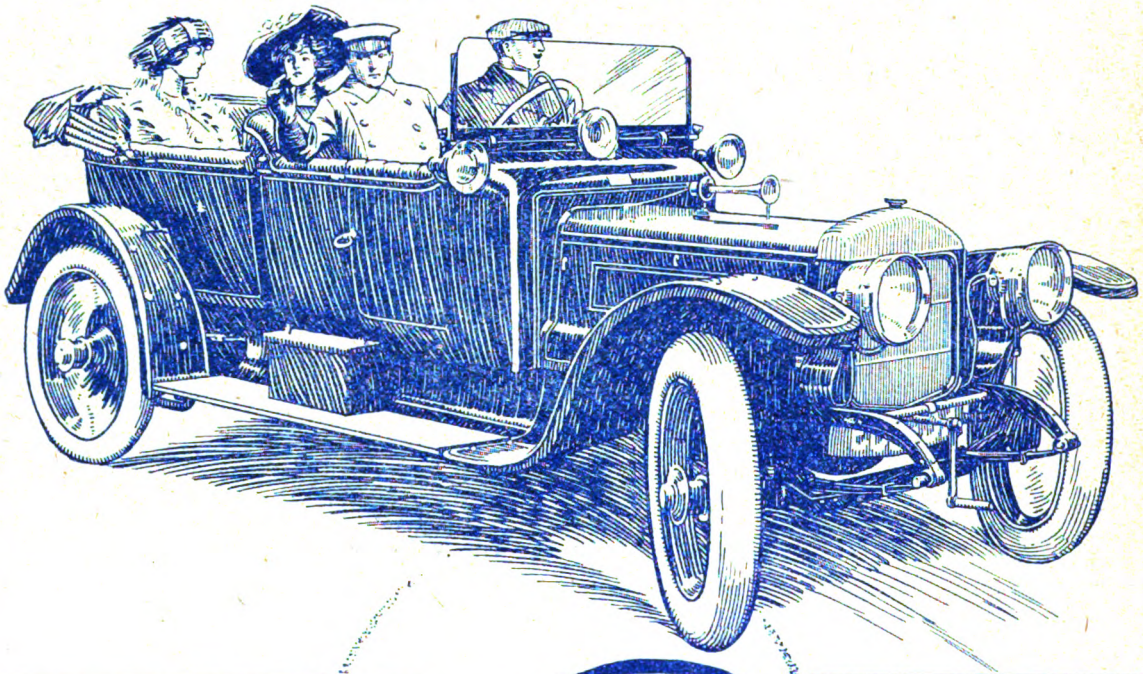
A long journey in a badly sprung, badly upholstered, and noisy car is not exactly a nerve tonic—in spite of fine weather and fresh breezes.

As a rule, a journey of this kind is productive of what is commonly known as "*that tired feeling*."

A silent engine, a well sprung and beautifully upholstered car, and the thorough confidence which comes from absolute reliability are the elements necessary to make a long journey a *real* nerve tonic.

The Daimler car embodies all these virtues, and the Daimler Company are always prepared to give proof by actual demonstration.

THE DAIMLER COMPANY, LTD., COVENTRY.



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17 AUG 1912

Lighting-Up Time, 8.7 p.m.

The AUTO

-Motor Journal

"Yellow Cover"

3D

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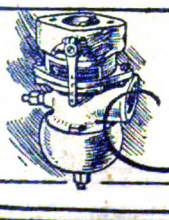
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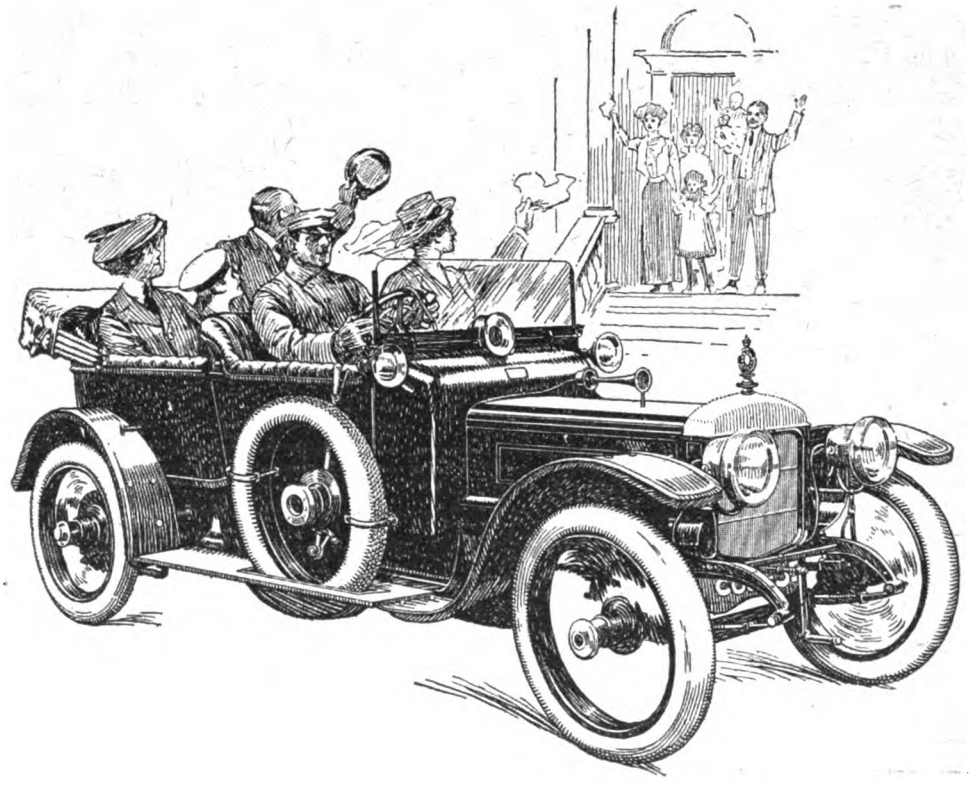
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ELEGANCE *plus* EFFICIENCY.

The distinctive and elegant appearance of the Daimler is well known to all motorists who appreciate the value of a good-looking car.

Good lines go to make a car look well *externally*, but when added to a power plant such as the sleeve-valve engine, then the combination is indeed very hard to beat. Such a car is the Daimler.

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Lighting-Up Time, 7.35 p.m.

SEP 10 12

The AUTO

-Motor Journal

"Yellow Cover"

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper]

No. 608. (No. 35. Vol. XVII.) AUGUST 31, 1912. (1d. Weekly Art Paper, 3d.) (Edition).

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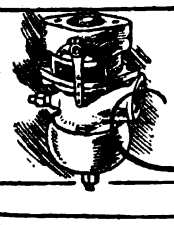
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Like a chain, which is as strong as its weakest link, a motor-car is as durable as its weakest part. A car may have a splendid motor, a fine clutch, good transmission, a strong frame and a perfect oiling system, but if the other parts of its design are not correspondingly good, then that car is bound to give trouble. It is in a case like this that the Daimler scores; years of experience, perfectly organised factories and first-class designers have eliminated all the weak points, that is why the Daimler is to-day and will always be

The Better Car.

Daimler

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Lighting-Up Time, 7.20 p.m.

The AUTO

-Motor Journal

"Yellow Cover"

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper]

No. 609. (No. 36. Vol. XVII.) SEPTEMBER 7, 1912. (1d. Weekly. Art Paper, 3d.) (Edition).

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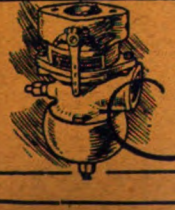
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Safety—to you and to those who ride in your car—is a prime consideration in a motor car. Nothing can compare in importance with human safety.

Pleasure, satisfaction, and that feeling of absolute security—can only come with perfect reliance on the car you are driving, and if the car happens to be a Daimler then you *know* that the product of such an organisation as the Daimler Co. will not fail you in an emergency. That is why it *pays* you to buy a Daimler.

Send for a copy of the Daimler Bulletin.

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Lighting-Up Time, 7.13 p.m.

The AUTO

-MOTOR JOURNAL

"Yellow Cover"

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper]

No. 610. (No. 37. Vol. XVII.) SEPTEMBER 14, 1912. (1d. Weekly. Art Paper, 3d.) (Edition).

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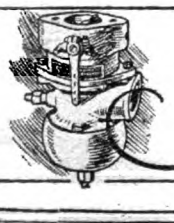
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"True merit consists not in doing well what no one else has attempted, but in doing best what thousands can do well."—Macaulay.

This is precisely the reason why Daimler quality stands pre-eminent in the motoring world—the reason why Daimler cars always "get you there."

We do not claim to be the only manufacturers of good cars—but what we do claim is that many manufacturers are doing satisfactorily to-day what we are doing *best*.

The Daimler product is the result of many years' experience in the making of motor cars—it is the product of the finest and best equipped factories in the country.

Surely there is reason in our argument when we say that with the best equipment and the best men, it is but natural that we should turn out the best car.

The Daimler Company, Ltd., Coventry.

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Lighting-Up Time, 6.49 p.m.

The AUTO

-MOTOR JOURNAL

"Yellow Cover"

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper]

No. 611. (No. 38. Vol. XVII.) SEPTEMBER 21, 1912. (1d. Weekly. Art Paper, 3d.) (EDITION).

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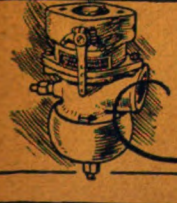
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Famous the world over, not merely because it is engined with the sleeve valve motor—but equally because of its delightfully silent smoothness of running due to perfect suspension, and the quiet elegance of its appointments.

As convenient for shopping as it is for touring, it is as distinguished at the social function as it is on the high road.

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Coventry.

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OCT 7 19

Lighting-Up Time, 6.36 p.m.

The AUTO

-MOTOR JOURNAL

"Yellow Cover"

3D

17th YEAR. Established 1896. Registered at the General Post Office as a Newspaper

No. 612. (No. 39 Vol. XVII.) SEPTEMBER 28, 1912. (1d. Weekly. Art Paper, 3d.) (EDITION).

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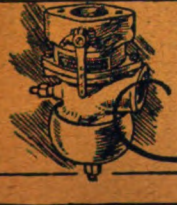
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Lighting-Up Time, 6.23 p.m.

The AUTO

-Motor Journal

"Yellow Cover"

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper.]

No. 613. (No. 40. Vol. XVII.) OCTOBER 5, 1912. (1d. Weekly. Art Paper, 3d.) (Edition).

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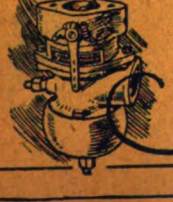
JARROTT LIMITED

who will save you all trouble by supplying a suitable Ca and deliver same properly tuned up ready for the road

Any make adjusted and thoroughly renovated as required. Excellent Garage Accommodation. Write for "The Car, its Repair and Upkeep."

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C.D.C.



Stewart Precision Carburettor.

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Stewart Paraffin Carburettor

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THE STEWART-PRECISION CARBURETTOR CO., LTD.

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GOLD POKAL (Gold Cup), height 30 in., weight 153 ozs., was won by the only

BEDFORD CAR

entered—lubricated exclusively with

Vacuum Mobiloil

The "Bedford" was THE ONLY CAR TO GAIN — HIGHEST POSSIBLE, viz.: 1,400 POINTS. —

St. Petersburg Flying Kilo. **FIRST**

Riga Flying Kilo. **FIRST**

Kieff Hill Climb. **FIRST**

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ALL ON MOBILOIL. Obtainable of Agents everywhere.

VACUUM OIL CO., LIMITED,
Caxton House, Westminster, LONDON, S.W.
Telegrams:—"Vacuum, London." Telephone:—6840 Gerrard.

THE GREAT CENTRAL RAILWAY . . . IS THE LINE . . FOR HOLIDAY TRAVEL

EXPRESS RESTAURANT CAR TRAINS

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Nottingham, Halifax, Manchester, &c.

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Also to and from GLOUCESTER, CHELTENHAM, NEWPORT, CARDIFF, BARRY and SOUTH WALES.

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EXPRESS TRAINS are VESTIBULED and include BREAKFAST, LUNCHEON, or DINING CARS.

For particulars of Train Service, Special Travel facilities & other information apply at any Great Central Station or Agency, Dean & Dawson's Offices, or send postcard to Publicity Dept., 216, Marylebone Road, London, N.W.

SAM FAY, General Manager.

THE ORIGINAL PUTTEE LEGGING.

LEGGINGS FOR MOTORING.

WHOLESALE PRICE LIST ON APPLICATION.



BLACK OR BROWN PIGSKIN.
Best Quality only.

MADE TO MEASURE OR FROM STOCK.

PRICES FROM 10/6 to 21/- PER PAIR.

SINGLE SPRING LEGGING.
VERY SIMPLE IN USE.



RULES FOR SELF-MEASUREMENTS ON APPLICATION.

All measures kept for future orders.

Leggings blocked in one piece to shape of leg.

ALL KINDS OF RIDING AND SHOOTING LEGGINGS IN STOCK IN PIGSKIN, BUCKSKIN, CALF, BOXCLOTH, AND SHEEPSKIN.

HARRIS, Boot and Legging Maker, 104, STRAND, LONDON.

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Lighting-Up Time, 6.8 p.m.

The AUTO

-MOTOR JOURNAL

"Yellow Cover"

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper]

No. 614. (No. 41. Vol. XVII.) OCTOBER 12, 1912. (1d. Weekly. Art Paper, 3d.) (EDITION).

ROLLS-ROYCE

ROLLS-ROYCE LIMITED 14 & 15 CONDUIT STREET LONDON W.

"The incomparable Rolls-Royce, rightly the *dernier cri* of Paris."

Mr. MAX PEMBERTON in the *Daily Mail*, 1/10/12.

MASS CARS

Telegrams:—"Masskah, London." *Telephone*:—Paddington 2461.

Works and Offices—99, Ladbroke Rd., Notting Hill, London, W.

London Agents:—Messrs. BYROM & CO., 85, Gt. Portland St., Oxford St., W.
Manchester Agents:—Messrs. WILLIAM MYCOCK & CO., St. Mary's St., Deansgate.
Bradford Agents:—Messrs. BRADFORD MOTORS, LTD., 138, Manningham Lane.

Cadillac 1912.

The only Car in the world with a SELF-STARTING, SELF-IGNITING, SELF-LIGHTING SYSTEM.

F. S. Bennett, Ltd. (Cadillac Motors, Ltd.)

CADILLAC CORNER, 219-229, SHAFTESBURY AVENUE, LONDON, W.C.

THE ROYAL CAR

HISPANO SUIZA

SOLE CONCESSIONAIRES:—

A. G. BROWN & CO., LTD., 118, Shaftesbury Avenue, W.

CARLESS'

STANDARD PETROL & MOVRIL

Either in round or square cans. First English Manufacturers.

Awarded Silver Medal, Automobile Club Show, Richmond, 1899.

Lubricating Oils and Greases.

CARLESS, CAPEL & LEONARD,

HACKNEY WICK, LONDON, N.E.

Telegrams—"Carless, Hackney Wick." Telephone—East 1310.

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EXPERTS,

JARROTT LIMITED,

who will save you all trouble by supplying a suitable Car and deliver same properly tuned up ready for the road.

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C.D.C.



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Daimler

It is just about now that the motoring public begin to realise that the Olympia Show is only one or two weeks ahead.

The Daimler Company however have been preparing for Olmpia for many months, and their 1913 models will, as usual, be the centre of interest to all who really appreciate the enormous strides made by the sleeve-valve engine, since its introduction by the Daimler Company in 1908.

———o———

The Daimler Company, Ltd.,
Coventry.

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Lighting-Up Time, 5.51 p.m.

OCT 28 12

The AUTO

-MOTOR JOURNAL

"Yellow Cover"

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper]

No. 615. (No. 42. Vol. XVII.) OCTOBER 19, 1912. (1d. Weekly. Art Paper, 3d.) (Edition).

ROLLS-ROYCE

"A CAR OF UNPARALLELED EXCELLENCE."

Lord Montagu in *The Car*, Dec. 13th, 1911.

ROLLS-ROYCE, LIMITED, 14 & 15, Conduit Street, London, W.

MASS CARS

Telegrams:—"Masskah, London." *Telephone*:—Paddington 2461.

Works and Offices—99, Ladbroke Rd., Notting Hill, London, W.

London Agents:—Messrs. BYROM & CO., 85, Gt. Portland St., Oxford St., W.
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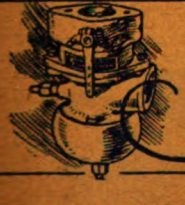
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Any make adjusted and thoroughly renovated as required. Excellent Garage Accommodation. Write for "The Car, Its Repair and Upkeep."

35, SACKVILLE STREET, PICCADILLY, W.

C.D.C.



Stewart Precision Carburettor.

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Are you perfectly satisfied with the work it has done for you during the period you have owned it?

If not—then it will *pay* you to visit the Daimler Stand at Olympia, and thoroughly examine and test the 1913 models shown thereon.

Place your order for a Daimler, and you insure yourself automatically against trouble for 1913.

Daimler

The Daimler Company, Ltd.,
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LIGHTING-UP TIME, 5.25 p.m.

NOV 11 1912

The AUTO - Motor Journal 'Yellow Cover' 3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper] (EDITION).

No. 617. (No. 44. VOL. XVII.) NOVEMBER 2, 1912. (1d. Weekly. Art Paper, 3d.)

ROLLS-ROYCE

ROLLS-ROYCE, LIMITED, 14 & 15, Conduit Street, London, W.

"The perfection car."
European Mail, Oct. 19th, 1912.

MASS CARS

Telegrams:—"Masskah, London." *Telephone*:—Paddington 2461.
Works and Offices—99, Ladbroke Rd., Notting Hill, London, W.
London Agents:—Messrs. BYROM & CO., 85, Gt. Portland St., Oxford St., W.
Manchester Agents:—Messrs. WILLIAM MYCOCK & CO., St. Mary's St., Deansgate.
Bradford Agents:—Messrs. BRADFORD MOTORS, LTD., 138, Manningham Lane.

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Admitted to be the greatest value ever offered.

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OLYMPIA, STAND 120.
British Built.
Its merits are so remarkable that a description would savour of exaggeration.
JUDGE FOR YOURSELF.

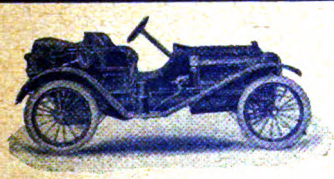


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8 h.p., 2-seater, with hood, screen, 5 lamps and accessories.

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Telephone—6067 MAYFAIR.

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JARROTT LIMITED,
who will save you all trouble by supplying a suitable Car and deliver same properly tuned up ready for the road.
Any make adjusted and thoroughly renovated as required. Excellent Garage Accommodation.
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35, SACKVILLE STREET, PICCADILLY, W.
C.D.C.

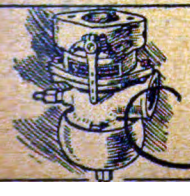
THE MAXIM CAR 119 Guineas



AT MAXIM COST. 119 Guineas

4-cyl., 22 h.p., Bosch High-Tension Magneto.
COMPLETE AS SHOWN. SEND FOR BOOK H.
BRITISH LION MOTOR CAR CO., Ltd., 177, Gt. Portland St., W.

LOOK AT THE BACK OF THIS COVER FOR THE GREATEST VALUE FOR 1913.



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STAND 62
OLYMPIA.

Nov. 8th to 16th.

This year the Daimler Co., Ltd., are exhibiting two models only, viz. :

26 H.P. (4 CYL.) LANDAULETTE

and a

SPECIAL DAIMLER (6 CYL.) LIMOUSINE.

Other new types will be on exhibition during the Show period at the Company's Depot

27, PALL MALL.

Daimler

The Daimler Company, Ltd.,
Coventry.

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LIGHTING-UP TIME, 5.12 p.m.

NOV 19 1912

The AUTO
-Motor Journal
'Yellow Cover'

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper] (EDITION).

No. 618. (No. 45. VOL. XVII.) NOVEMBER 9, 1912. (1d. Weekly. (Art Paper, 3d.)

ROLLS-ROYCE

ROLLS-ROYCE, LIMITED, 14 & 15, Conduit Street, London, W.

"The perfection car."
European Mail, Oct. 19th, 1912.

MASS CARS

Telegrams:—"Masskah, London." *Telephone*:—Paddington 2461.
Works and Offices—99, Ladbroke Rd., Notting Hill, London, W.
London Agents:—Messrs. BYROM & CO., 85, Gt. Portland St., Oxford St., W.
Manchester Agents:—Messrs. WILLIAM MYCOCK & CO., St. Mary's St., Deansgate.
Bradford Agents:—Messrs. BRADFORD MOTORS, LTD., 138, Manningham Lane.

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AN IMMEDIATE SUCCESS.

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THE ROYAL CAR
HISPANO SUIZA
SOLE CONCESSIONAIRES:—
A. G. BROWN & CO., LTD., 118, Shaftesbury Avenue, W.

OLYMPIA, STAND 120.
British Built.
Its merits are so remarkable that a description would savour of exaggeration.
JUDGE FOR YOURSELF.



Price 145 Gns. complete.
8 h.p., 2-seater, with hood, screen, 5 lamps and accessories.

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Telephone—6067 MAYFAIR.

IN BUYING A NEW OR SECOND-HAND CAR OF ANY MAKE, PURCHASE THROUGH THE INDEPENDENT
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who will save you all trouble by supplying a suitable Car and deliver same properly tuned up ready for the road.
Any make adjusted and thoroughly renovated as required. Excellent Garage Accommodation. Write for "The Car, Its Repair and Upkeep."
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C.D.C.

THE MAXIM CAR 119 Guineas.



THE FAMOUS METZ LION.

AT MAXIM COST.
22 h.p.
4 CYL.
Send for Book H.

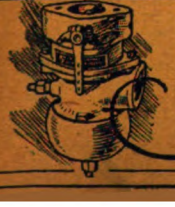
14-20 h.p.—
4 Guinea Tax.



ROYAL D.

£200

BRITISH LION MOTOR CAR Co., Ltd., 177, Gt. Portland St., W.



Stewart Precision Carburettor.
also
Stewart Paraffin Carburettor

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Daimler

"In this matter, it appears to us that the policy of quoting inclusive prices which is still followed by some of the leading firms, militates against the full realisation of the individual note which, so to speak, differentiates the modern high-class British car from the cheap American productions that you can take or leave as they are, but cannot have altered for love nor money. It stands to reason that it must be much fairer all round if the prospective purchaser is in a position to choose each essential item from a price list."

"Automotor Journal," Oct. 26th, 1912.

THE DAIMLER COMPANY beg to announce that, following upon the suggestions made in the press, they have so elaborated the organisation of their coachbuilding department that each customer is given full facilities to exercise his own individual taste in the matter of colour schemes and equipments.

Specifications covering the widest ranges of choice prepared and submitted upon application to

The Daimler Company, Ltd.,
Coventry.

Or any of its branches:—

London, Manchester, Nottingham, Bristol, Leeds; Brighton, Cardiff, Newcastle-on-Tyne, Birmingham, Oxford, Abergavenny, Torquay.

STAND 62 OLYMPIA.

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LIGHTING-UP TIME, 5.1 p.m.

The AUTO
-Motor Journal
'Yellow Cover'

3D

17th YEAR. Established 1896. Registered at the General Post Office as a Newspaper (EDITION).

No 619 (No. 46. Vol. XVII.) NOVEMBER 16, 1912. (1d. Weekly. Art Paper, 3d.)

ROLLS-ROYCE

ROLLS-ROYCE, LIMITED, 14 & 15, Conduit Street, London, W.

"Banner Bearer of the British Industry."
Bystander, Nov. 6th, 1912.

MASS CARS

Telegrams:—"Masskah, London." *Telephone*:—Paddington 2461.
Works and Offices—99, Ladbroke Rd., Notting Hill, London, W.
London Agents:—Messrs. BYROM & CO., 85, Gt. Portland St., Oxford St., W.
Manchester Agents:—Messrs. WILLIAM MYCOCK & CO., St. Mary's St., Deansgate.
Bradford Agents:—Messrs. BRADFORD MOTORS, LTD., 138, Manningham Lane.

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AN IMMEDIATE SUCCESS.

1913 SELF-STARTER.

Admitted to be the greatest value ever offered.

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CADILLAC CORNER, 219-229, SHAFTESBURY AVENUE, LONDON, W.C.

THE ROYAL CAR
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SOLE CONCESSIONAIRES:—
A. G. BROWN & CO., LTD., 118, Shaftesbury Avenue, W.

OLYMPIA, STAND 120.
British Built.
Its merits are so remarkable that a description would savour of exaggeration.
JUDGE FOR YOURSELF.

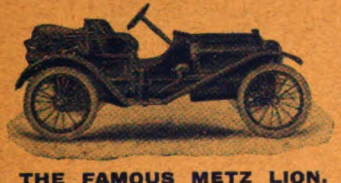


Price 145 Gns. complete.
8 h.p., 2-seater, with hood, screen, 5 lamps and accessories.

GLOBE CARS, LTD., 37, Duke St., Oxford St.
Telephone—6067 MAYFAIR.

IN BUYING A NEW OR SECOND-HAND CAR OF ANY MAKE, PURCHASE THROUGH THE INDEPENDENT
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C.D.C.

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THE FAMOUS METZ LION.

AT MAXIM COST.
22 h.p.
4 CYL.
Send for Book H.

14-20 h.p.—
4 Guinea Tax.


ROYAL D.

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Stewart Precision Carburettor.
also
Stewart Paraffin Carburettor

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THE STEWART-PRECISION CARBURETTOR CO., LTD.
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1908-1912

PROGRESS HAS BEEN RAPID

during these few years, yet the Daimler sleeve-valve engine is still the most efficient petrol engine on the market. Something better has yet to be discovered.

Many detail improvements have been made to the Daimler cars during this time, and the "Special Daimler" shewn on Stand 62, embodies the experience of the finest automobile engineers in the country. It is quite the last word in luxurious motor carriages.

Three exhibits only are staged, the "Special Daimler" mentioned above, a 26 h.p. 4-cyl. "Cranmore" landaulette and a 30 h.p. 6-cyl. "Camborne" limousine.

Daimler

STAND 62 OLYMPIA.

The Daimler Company, Ltd., Coventry.

STAND 62 OLYMPIA.

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LIGHTING-UP TIME, 4.55 p.m.

The AUTO

-Motor Journal

'Yellow Cover'

3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper] (EDITION).

No. 620. (No. 47. VOL. XVII.) NOVEMBER 23, 1912. 1d. Weekly. (Art Paper, 3d.)

ROLLS-ROYCE

ROLLS-ROYCE, LIMITED, 14 & 15, Conduit Street, London, W.

"The King of its class."
Manchester Courier, Jan. 17th, 1912.

MASS CARS

Telegrams:—"Masskah, London." *Telephone*:—Paddington 2461.
Works and Offices—99, Ladbroke Rd., Notting Hill, London, W.
London Agents:—Messrs. BYROM & CO., 85, Gt. Portland St., Oxford St., W.
Manchester Agents:—Messrs. WILLIAM MYCOCK & CO., St. Mary's St., Deansgate.
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HISPANO SUIZA
SOLE CONCESSIONAIRES:—
A. G. BROWN & CO., LTD., 118, Shaftesbury Avenue, W.

BRITISH BUILT.
Its merits are so remarkable that a description would savour of exaggeration.
JUDGE FOR YOURSELF.



Price 145 Gns. complete.
8 h.p., 2-seater, with hood, screen, 5 lamps and accessories.

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AT MAXIM COST.
22 h.p.
4 CYL.
Send for Book H.

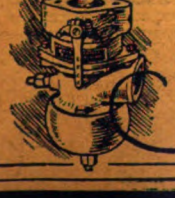
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Send for illustrated booklets all about the three "S.P." SPECIALITIES.
THE STEWART-PRECISION CARBURETTOR CO., LTD., 199, Piccadilly, London, W.

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"SPECIAL DAIMLER."

. . . an appellation which, implying as it does that the latest production of the famous firm is the last word in refinement and luxury, is in no way belied by the reality. No verbal description, however, can convey an adequate impression of the fine design, elegance and luxury of this really magnificent car. . . . From the general design of the car down to the smallest detail, such, for instance, as the radiator cap which has been redesigned and is of a very neat and pleasing appearance, the impression conveyed is one of a splendid achievement, which may well make both the engineer and the coachbuilder proud of their arts.

Extract from "The Motor."

This "Special Daimler" model embodies the experience of the finest engineers in the country. It is quite the last word in luxurious motor carriages.

Arrangements have been made to give demonstration runs on this special model from the Daimler Co.'s London Depot, 27-28, Pall Mall.

Daimler

The Daimler Company, Ltd.,
Coventry.

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LIGHTING-UP TIME, 4.53 p.m.

The AUTO
- Motor Journal
'Yellow Cover'
3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper] (EDITION).
No. 621. (No. 48. VOL. XVII.) NOVEMBER 30, 1912. (1d. Weekly. Art Paper, 2d.)

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"The King of its class."
Manchester Courier, Jan. 17th, 1912.

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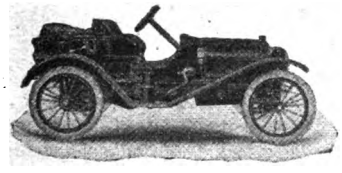


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Journal, Dec. 7, 1912.

LIGHTING-UP TIME, 4.49 p.m.

The AUTO

- Motor Journal 'Yellow Cover' 1D

17th YEAR. Established 1896. Registered at the General Post Office as a Newspaper (EDITION).
No. 622. (No. 49. Vol. XVII.) DECEMBER 7, 1912. (1d. Weekly. Art Paper, 3d.)

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"An examination of its points is a real education."
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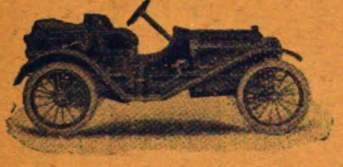
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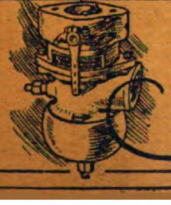
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LIGHTING-UP TIME, 4.44 p.m.

The AUTO - Motor Journal 'Yellow Cover' 3D

17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper] (EDITION).

No. 623. (No. 50. VOL. XVII.) DECEMBER 14, 1912. (1d. Weekly. Art Paper, 3d.)

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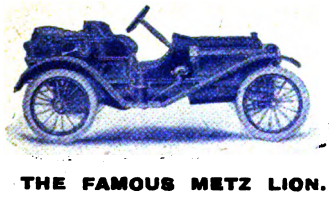
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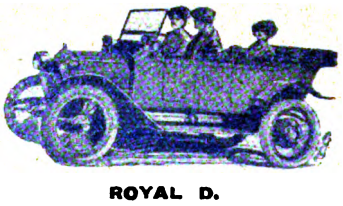
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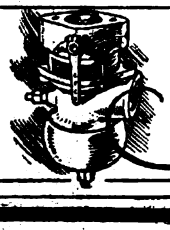
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LIGHTING-UP TIME, 4.44 p.m.

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The AUTO
-Motor Journal
'Yellow Cover'

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17th YEAR. Established 1896. [Registered at the General Post Office as a Newspaper] (EDITION

No. 625. (No. 52 Vol. XVII.) DECEMBER 28, 1912 1d. Weekly. (Art Paper, 3d.)

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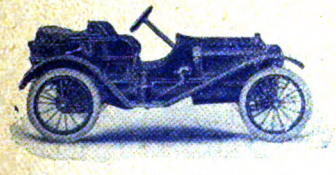
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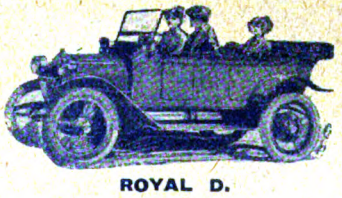
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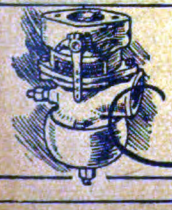
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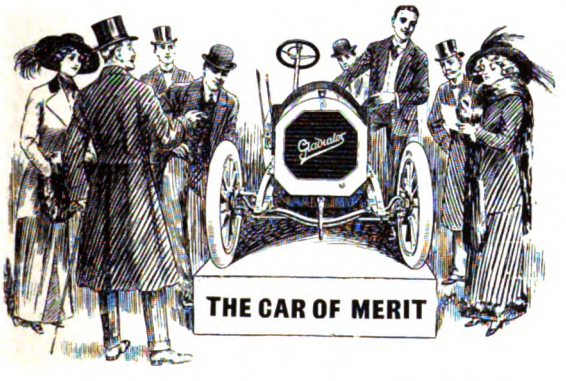
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No charge is made for an insertion in this list, nor can an advertisement therein be bought.

In reference to this Guide and for further touring information, address the Editor, "Auto.," 44, St. Martin's Lane, W.C.
This list is revised every week, and the courtesy of your assistance in its improvement will be much appreciated.
Hotels starred herein have been strongly recommended by visitors.
*Birmingham, Edinburgh and Glasgow have several *** station hotels of equal merit.*
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*Hotels:—*** Very large and modern. ** Recommended (night or week-end). * Recommended (lunch or tea).*
Places:—¶ Pleasant situation or good centre for circuit tours. ‖ Cathedral, ruins or other object of interest.
‡ Seaside resort. † Lake or river side.
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ABERGAVENNY...*Angel.*
ABERYSTWYTH§‡*Queen's.*
ABINGDON.....*Queen's.*
ALDEBURGH§‡...*Wentworth.*
AMESBURY.....*George.*
ANDOVER.....*White Hart.*
APPLEBY.....*Tufton Arms.**
ARDLUI.....*Ardlui.**
ARUNDEL‖.....*Norfolk.*
ASCOT.....*Royal.*
ASHFORD.....*Royal Oak.*
ASKERN.....*Askern Hydro.*
AVEN MORE.....*Station.**
AYR§‡.....*Station.*

BALLATER...*Invercauld Arms.*
BAMFORD.....*Mgt. of Granby.*
BANBURY.....*White Lion. Red Lion.*
BANCHORY.....*Tor-na-coille.*
BANFF●‡.....*Fife Arms.*
BARMOUTH§‡....*Cors-y-Gedol.*
BARNARD CLE. *King's Head.**
BARNBY MOOR..*Olde Bell.**
BARNSTAPLE....*Imperial.*
BASINGSTOKE...*Red Lion.*
BATH●‖.....*Empire.*
BAWTRY.....*Crown.*
BEACONSFIELD *R. White Hart.*
BERWICK-ON-T.‡ *King's Arms.*
BETTWS-Y-COED¶ *Royal Oak.**
BEXHILL‡.....*Sackville...***
BIDEFORD§.....*The Royal.*
BISHOP STORTFORD● *George.*
BLACKPOOL●§‡ *Metropole.****
BODMIN.....*St. Petrocks.*
BOGNOR‡.....*Ryl. Norfolk.*
BOURNEMOUTH§‡*Highcliffe...*** Burlington.** Royal. Exeter.*
BOWNESS†.....*Belsfield.***
BOX HILL...*Burford Bridge.**
BRAEMAR.....*Fife Arms.*
BRAINTREE.....*White Hart.*
BRECON.....*Castle.*
BRENTWOOD.....*White Hart.*
BRIDGENORTH..*Crown.*
BRIDLINGTON● *Alexandra.*
BRIGG.....*Angel.*
BRIGHTON●§‡...*Grand...****
BRISTOL.....*Royal.*
BROADSTAIRS‡..*Balmoral.*
BROADWAY¶ ....*Lygon Arms.**
BROCK'NH'RST● *Balmer Lawn.*
BROMLEY..... *Royal Bell.*
BUCKINGHAM ...*White Hart.*
BUDE‡.....*Grenville.*
BURNH'M-ON-CROUCH
BURY ST. EDMUNDS‖ *Suffolk.*
BUXTON¶.....*Empire.*

CAMBRIDGE‖...*University A.***
CANTERBURY‖...*County.*
CAPEL CURIG...*Royal*
CARDIFF.....*Park.*
CARLISLE....*Crown & Mitre.**
CARMARTHEN. *Boar's Head.*
CARNARVON‖ *Royal Sportsman*
CARNOUSTIE§‡ *Bruce's.*
CHARD.....*George.*
CHELMSFORD.....*White Hart.*
CHELTENHAM...*Queen's.*
CHESTER‖.....*Grosvenor.*
CHICHESTER.....*Dolphin.**
CHIRK.....*Hand.*
CHRISTCHURCH..*King's Arms.*
CH. STRETTON¶...*C. Stretton**
CLACTON‡.....*Grand.*
CLEVEDON.....*Walton Park.*
CLIFTON.....*Clifton Down.*
COBHAM..... *White Lion.*
COLCHESTER.....*Cups.*
COLWYN BAY‡...*Pwllcrochan.*
CRAIL§‡.....*Balcoime.*
CRAWLEY.....*George.*
CROMER§‡.....*de Paris.*
CROWBOROUGH..*Beacon.*
CROYDON.....*Greyhound.*
CRUDEN BAY§‡ *Bay.*

DARLINGTON ... *Nth. Eastern.*
DAWLISH.....*Grand.*
DEAL§*.....*Sth. Eastern.*
DERBY.....*Royal.*
DONCASTER.....*Danum.*
DORKING.....*Red Lion.**
DORNOCH§‡.....*Station.*
DOVER.....*Lord Warden.*
DOVERCOURT.....*Alexandra.*
DROITWICH§¶....*Raven.*
DUMFRIES.....*Station.*
DUNBAR§‡.....*Belle vue.*
DUNDEE§.....*Queen's.*
DUNSTABLE.... *Old Sugarloaf.*

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EAST MOLESEY. *Thames.*
ELIE§‡.....*Marine.*
ELLESMERE *Bridgwater Arms.*
ELY‖ .. ..*Lamb.*
EPSOM§.....*King's Head.*
ESHER.....*Bear.*
EVRSHAM.....*Northwick.*
EXETER‖.....*New London.*
EXMOUTH.....*Imperial.*

FALMOUTH‡.....*Falmouth.*
FARNBOROUGH..*Queen's.**
FARNHAM.....*Bush.*
FARNINGHAM....*Lion.*
FELIXSTOWE§‡...*Felix...** Bath.***
FISHGUARD.....*Fishguard Bay.*
FOLKESTONE●..*Metropole...****
FORT AUGUSTUS..*Lovat Arms.*
FORT WILLIAM *Alexandra.*
FOWEY‡.....*Fowey.*
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GLOUCESTER‖ ...*Bell.*
GODALMING●§ *King's A., Ryl.*
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HARROGATE¶ ...*Majestic...****
HARROW .....*King's Head.**
HASLEMERE.....*White Horse.*
HASTINGS●§‡....*Queen's.*
HATFIELD.....*Red Lion.**
HAWKHURST.....*Queen's.*
HAYLING ISLAND●*Royal.*
HENLEY●§†.....*Red Lion.*
HEREFORD¶‖ ...*Mitre.*
HERNE BAY●‡ *Grand.***
HERTFORD ...*Dimsdale Arms.*
HEXHAM.....*Hydro.*
HIND HEAD●...*Moorlands.***
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HOLYHEAD .....*Station.*
HORLEY.....*Checquers.*
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ILFRACOMBE‡....*Ilfracombe. Runnacleave.*
INVERARY‡.....*Argyll Arms.*
INVERNESS§.....*Station.*
IPSWICH§.....*Gt. White Horse.**

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KENILWORTH ...*Abbey.*
KESWICK .....*Keswick.*
KETTERING.....*George.*
KING'S LYNN....*Globe.*
KINGSTON.....*Nuttall's.*
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LANARK .....*Clydesdale.*
LANCASTER.....*County.*
LARGS‡ .....*Victoria.*
LAUNCESTON.....*White Hart.*
LEAMINGTON¶..*Regent.*
LEATHERHEAD..*Swan.*
LEDBURY.....*Feathers.*
LEEDS .....*Metropole.*
LEICESTER .....*Bell.*
LEIGH‡ .....*Grand.*
LEOMINSTER.....*Royal Oak.*
LEVEN§‡.....*Caledonian.*
LINCOLN‖ .....*Saracen's Head.*
LITCHFIELD.....*George.*
LIVERPOOL§●... *Adelphi.*
LIZARD ..... *Housel Bay.***
LLANBERIS... *Royal Victoria.*
LLANDRINDODWELLS.*YeWells.*
LLANDUDNO‡....*Grand.*
LLANGOLLEN¶...*Hand.***
LLANTHONY.....*Abbey.*
LOCH AWE† .....*Loch Awe.*
LOCHEARNHEAD *Lochearnhead*
LOCH LOMOND†.*Tarbet.*
LOWESTOFT‡ ....*Royal.*
LUDLOW .....*Feathers.*
LYME REGIS‡ ...*Royal Lyon.*
LYMINGTON .....*Angel.*
LYNDHURST●¶ *Grand.***
LYNMOUTH§‡.... *Tors.***
LYNTON.....*Royal Castle.*
LYTHAM§‡.....*Clifton Arms.*

MACHRIHANISH§‡ *Ugdale A.*
MAIDENHEAD●§† *Riviera.*
MAIDSTONE.....*Royal Star.*
MALDON .....*Blue Bear.*
MALVERN §.....*Imperial.*
MANCHESTER....*Midland...***
MARGATE●‡§ ..*Queen's.*
MARKET HARBRO'.*Angel.*
MARLBOROUGH...*Ailesbury A.*
MARLOW.....*Crown.*
MATLOCK.....*Smedley's.*
MATLOCK BATH¶*Ryl.&Baths.*
MELROSE .....*Abbey.*
MINEHEAD .....*Metropole.*
MOFFAT .....*Buccleuch Arms.*
MONMOUTH ...*Beaufort Arms.*
MONTROSE§‡....*Star.*
MORECAMBE‡....*Elms.*
MUMBLES/§‡...*Langland Bay.*

NAIRN .....*Station.*
NANTWICH .....*Brine Baths.*
NEWARK .....*Clinton Arms.*
NEWBURY .....*Chequers.*
NEWBY BRIDGE‡ *Swan.*
NEWCASTLE-ON-TYNE *County.*
NEWHAVEN● ...*Ship.*
NEWMARKET§...*Rutland A.**
NEW MILTON.....*Barton Ct.*
NEWQUAY‡ .....*Atlantic.***
NEWTON ABBOT...*Globe.*
NORTHALLERTON *Golden Lion.*
NORTHAMPTON...*Angel.*
NORTH BERWICK§‡...*Marine.*
NORTHWICH.....*Angel.*
NORWICH‖●‖ ...*Maid's Head.*
NOTTINGHAM§...*Victoria.*

OBAN‡.. .....*Alexandra.*
OCKHAM.....*Hautboy.*
OKEHAMPTON..*White Hart.***
ONGAR .....*King's Head.*
OSWESTRY.....*Wynnstay.*
OXFORD‖.....*Randolph.*

PADSTOW .....*S. Western.*
PAIGNTON .....*Redcliffe.*
PEEBLES .....*Hydro.***
PENARTH§‡ .....*Esplanade.*
PENRITH .....*George.*
PEN-Y-GWRYD ...*Hotel.***
PENZANCE§‡. *Riviera Palace.***
PERTH .....*Station.*
PETERBOROUGH‖ *Gt. Northern.*
PETERSFIELD ...*Red Lion.*
PETWORTH .....*Swan.*
PITLOCHRY .....*Atholl.*
PLYMOUTH .....*Royal.*
POOLE .....*Antelope.*
PORLOCK.....*Castle.*
PORTFATRICK....*Portpatrick.*
PORTSMOUTH‖...*George.*
PRESTON .....*Park.*
PRINCETOWN...*Two Bridges.***
PULBOROUGH ...*Swan.*
PWLLHELI.....*Tower.*

RAINHAM .....*White Horse.*
RAMSGATE§‡● *Granville.*
READING...*Caversham Bridge.*
REDHILL .....*Lakers.*
REIGATE§.....*White Hart.*
RHYL‡ .....*Queen's.*
RINGWOOD .....*White Hart.*
RIPLEY .....*Talbot.*
RIPON¶‖ .....*Unicorn.*
ROCHESTER‖...*Royal Victoria.*
ROMFORD .....*White Hart.*
ROTHESAY.....*Station.*
RUGBY .....*Royal George.*
RYE .....*Mermaid.**

ST. ALBANS‖.....*Red Lion.*
ST. ANDREWS●§*Marine.*
ST. DAVID'S‡ ...*Grove.*
ST. IVES (Corn.)*Tregenna Cstl.*
ST. LEONARDS●*Sussex.*
ST. NEOTS .....*Crossheys.*
SALISBURY‖.....*White Hart.*
SALTBURN§‡ ...*Zetland.*
SANDGATE .....*Royal Kent.*
SANDOWN .....*Ocean.*
SANDWICH§‡ ...*Guildford.*
SCARBOROUGH‡..*Grand.*
SEAFORD● .....*Esplanade.*
SEATON .....*Royal Clarence.*
SELBY .....*Londesborough.*
SEVENOAKS ...*Royal Crown.**
SHAFTESBURY ..*Grosvenor A.*
SHANKLIN‡ .....*Royal Spar.*
SHAP .....*Greyhound.*
SHEERNESS .....*Fountain.*
SHEFFIELD .....*Grand.*
SHERINGHAM§‡..*Grand.*
SHOREHAM .....*Bridge.*
SHREWSBURY.....*Crown.*
SIDMOUTH● .....*Victoria.*
SITTINGBOURNE *Bull.*
SKEGNESS●§‡ ...*Seacroft.*
SLOUGH§.....*Old Crown.*
SONNING ....*White Hart.*
SOUTHAMPTON *South Western.*
SOUTHEND‡ .....*Palace.*
SOUTHPORT .....*Victoria.*
SOUTHSEA‡ .....*Queen's.*
SPEAN BRIDGE *Spean Bridge.*
STAFFORD.....*Swan. North Western.*
STAINES† .....*Angel.*
STAMFORD .....*George.*
STEYNING.....*White Horse.*
STIRLING .....*Golden Lion.*
STONEHAVEN ....*Bay.*
STOURBRIDGE§..*Talbot.*
STOW-ON-WOLD *Talbot.*
STRANRAER .....*George.*
STR'TF'RD-ON-A.‖*Shakespeare.*
STRATHPEFFER..*Ben Wyvis.*
STROUD .....*Royal George.*
SUNDERLAND ....*Grand.*
SUNNINGDALE●§*Wells.*

TAMWORTH .....*Castle.*
TAPLOW† .....*Skindles.*
TARBET† .....*Tarbet.*
TARPORLEY.....*Swan.*
TAUNTON .....*Claridge's.*
TAVISTOCK .....*Bedford.*
TEIGNMOUTH‡...*Royal.*
TENBY‡ .....*Royal Gatehouse.*
TEWKESBURY....*Hop Pole.*
THETFORD .....*Bell.*
THIRSK .....*Fleece.*
TINTAGEL§‡*K.Arthur's Castle.*
TINTERN‖ ...*Beaufort Arms.***
TIVERTON.....*Palmerston.*
TONBRIDGE.....*Rose & Crown.*
TORQUAY .....*Imperial.*
TOWCESTER ...*Pomfret Arms.*
TRING .....*Rose & Crown.**
TROON§‡.....*Marine.*
TROWBRIDGE ...*George.*
TUNBRIDGE WELLS●*Spa.*
TURNBERRY§‡...*Station.*
TWO BRIDGES..*Two Bridges.***

ULLSWATER† ....*Brackenrigg.*
ULVERSTON .....*Hydro.*
UXBRIDGE .....*Chequers.*

VIRGINIAWAT'R† *Wheatsheaf.**

WALTHAM CROSS‖...*Falcon.*
WALTON .....*Oatlands Park.*
WARE .....*Saracen's Head.*
WARRINGTON ...*Patten Arms.*
WARWICK‖ .....*Woolpack.*
WATFORD●...*Rose & Crown.*
WELLINGTON● *Charlton A.*
WELLS .....*Swan.*
WESTCLIFFE‡....*Queen's.*
WESTERHAM ....*Crown.*
WESTGATE†§● *St. Mildreds.*
WEST HARTLEPOOL...*Grand.*
WESTON-SUPER-MARE§‡ *Royal.*
WESTWARD HO§‡ ...*Royal.*
WEYBRIDGE§ .*Oatlands Park.*
WEYMOUTH .....*Burdon.*
WHITBY‡ .....*Metropole.*
WHITCHURCH ...*White Hart.*
WHITEHAVEN ...*Grand.*
WHITSAND BAY●*Bay.*
WIGAN .....*Royal.*
WINCANTON ....*Bear.*
WINCHESTER‖...*Royal.*
WINDERMERE¶‖ *Riggs.*
WINDSOR‖§ .....*White Hart.*
WISLEY .....*Hut.**
WOKING§ .....*South Western.*
WOLVERHAMPTON *Victoria.*
WOODFORD .....*Epping Forest.*
WOODHAL SPA....*Victoria.*
WORCESTER‖ ...*Star.*
WORTHING●‡...*Warne's.*
WREXHAM .....*Imperial.*

YARMOUTH●§‡. *Victoria.*
YEOVIL.....*Three Choughs.*
YORK‖ .....*Station...***

This is the best GUIDE when Touring.

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"AUTO." LIST OF GARAGES OPEN ON SUNDAYS.

No charge is made for insertions in this list, nor can an advertisement therein be bought.

This list is for the convenience of week-end tourists. The Editor will much appreciate letters of recommendation, correction and comment. These garages are additional to those attached to the hotels in the "Auto." Guide.

* *Mechanic in attendance on Sundays.* † *Someone on premises all night.* ‡ *Certified repairer.*
A. All the above distinctions. *N. Appointed by the National Society of Chauffeurs.*

ABERDEEN ..... *Hamilton.* AN
ABERDOVEY ..... *Gray-Jones.* ‡
ABERFELDY ..... *Nicol.* *‡N
ABERGAVENNY... *Daimler.*
ALDERSHOT ..... *Aldershot.* ‡N
ALNWICK ..... *"A & B"* AN
ALTRINCHAM ... *Richardson.*
ALVESTON (GLOS.)... *Berkeley.*
AMBLESIDE ..... *Dobson.* AN
ANDOVER ..... *Moore.* A
ASHFORD.. *Ashford Motors.* *†N
BALA ..... *Bala.* A
BALLATER..... *Willox.* *‡
BANBURY ..... *Pytchley.*
BANBURY ..... *Wrench.* AN
BARNARD C'LE.. *Smith.* A
BARNSLEY..... *Reynolds.* ‡
BARNSTAPLE ... *Barnstaple.* AN
BARROW..... *Maxim.* *‡
BARRY ..... *White.* ‡
BASINGSTOKE ... *Webber.* AN
BATH ..... *Western.* *‡
BECKENHAM..... *Beckenham.* †
BEDFORD ..... *Course.* A
BERWICK ..... *Alnwick.* AN
BETTWS-Y-COED... *Yale.* *‡
BIDEFORD..... *Bideford.* ††
BIRMINGHAM ... *Banks.* A
BIRMINGHAM ... *Heath's.* AN
BISHOP'S WALTHAM... *Rooke.*
BLACKPOOL ..... *Jackson.* A
BLANDFORD ..... *Conyers.* A
BOSCOMBE..... *South Coast. Bournemouth & Dis.* *†
BOURNEMOUTH *Imperial.* ‡N
BRADFORD ..... *Central.*
BRECHIN ..... *Simpson.* ‡
BRENTWOOD..... *Brentwood.* ††
BRIDGWATER ... *Western.* *N
BRIDLINGTON ... *Purdon.* A
BRIGHTON..... *Moore.* A
BRISTOL..... *Willway.*
BROADSTAIRS ... *Dixon.* A
BROMLEY ..... *Bromley.* A
BROMSGROVE ... *Bryant.* A
BROMYARD ..... *Pettifer.* A
BRO'GHT'N F'RY. *K'nn'nm'k.* *‡N
BUNTINGFORD... *Harris.* A
BURNLEY ..... *Waltons.* A
BURTON..... *Porter Bros.* A
BUXTON ..... *Pyle.* ††
CAMBRIDGE ..... *Automobile.* A
CANTERBURY *Cant'y Motor.* AN
CARDIFF ..... *Hills.* A
CARLISLE ..... *Fendley.* AN
CHARD ..... *Press.* A
CHELMSFORD..... *Rosling.* A
CHELTENHAM ... *Steel.* AN
CHEPSTOW ..... *Chepstow.* ††
CHESHAM ..... *Foster.* ††
CHESTER ..... *Lewton.* AN
CIRENCESTER... *Bridges.* *‡
CLITHEROE .... *Cunningham.* A
COBHAM ..... *White Lion.*
COCKERMOUTH.. *Noble.* *‡
COLCHESTER ..... *Saunders.* A
COLERAINE ..... *McCollum.*
COVENTRY..... *Victoria.* A
CRAWLEY..... *Nightingale.* *‡
CRIEFF ..... *Millar.* A
CRIEFF ..... *Crieff.* AN
CROWBOROUGH .. *Stiller.* A
CROYDON ..... *Onward.* A
DARTFORD ..... *Beadle.* A
DAVENTRY..... *Reynolds.* A
DERBY..... *Atkey.* A
DEREHAM..... *Wright.* A
DEVONPORT..... *Kimber.* ‡
DEVIZES..... *Willis.* †N
DINGWALL ..... *Cran.*
DONCASTER ..... *Murray.*
DORKING..... *Dorking.* *‡
DUDLEY ..... *Baker.*
DULVERTON ... *Carnarvon A.* A
DUMFRIES..... *Dumfries.* AN
DURHAM ..... *Laidler.* AN
EASTBOURNE ... *Caffyns.* ††N
E. MOLESEY ..... *Williams.* A
EDINBURGH ..... *Croall.* ††
ELGIN ..... *Paterson.* *‡
EPSOM ..... *Page.* *†N
ERDINGTON ..... *Jones.* A
ESHER ..... *Denham.*
EXETER..... *Gould.* A
EXETER..... *Exeter.* *†N
FAKENHAM ..... *Baxter.* A
FARNBOROUGH .. *Strong.* A
FELIXSTOWE ..... *Prati. N.*
FENNY STRATF'D.. *Goodman.* A
FOLKESTONE ... *Players.* A
FORFAR..... *Simpson.* A
FORT WILLIAM.. *Marshall.* A
FRINTON ..... *Ratcliffe.*
GIRVAN ..... *Dickie.* A
GLASGOW ..... *Kennedy.* ††
GLASGOW ..... *Rennie.* ‡N
GLOUCESTER... *Bristol Road.* A
GLOUCESTER ..... *Smith.* A
GRANTHAM..... *Smith.* A
GREENOCK ..... *Central.* *‡N
GUILDFORD..... *Gray.* AN
GULLANE ..... *Stoddart.* *‡
HARROGATE ..... *Mackay.* *‡
HARROGATE ... *Wardman.* *‡N
HARROW..... *Leaborne.* ‡
HARROW..... *Dennis.*
HATFIELD ..... *Waters.* A
HATFIELD ..... *Gray.* AN
HAWICK ..... *Shaw.*
HELENSBURGH . *Macfarlane.* *‡
HEREFORD..... *Marriott.*
HITCHIN..... *Slater.* ‡
HORLEY..... *Horley.* *‡
HUNTINGDON..... *Murkett.* A
HUNTLEY ..... *Fitzpatrick.* ‡
INVERNESS ..... *Macrae.* AN
IPSWICH..... *Botwoods.* AN
KENDAL ..... *Croft.* A
KILMARNOCK ... *Dick.* ‡
KING'S LYNN.... *Johnson.*
KINGSTON..... *Lankester.* A
KIRKCALDY..... *Love.*
KIRKCALDY ..... *Descamps.* AN
LANARK ..... *Clydesdale.* A
LANCASTER ..... *Atkinson.*
LARGO..... *Wishart.* A
LAUNCESTON .... *Prout.* A
LEAMINGTON .... *Mell.* ††
LEAMINGTON .... *Midland.* *†N
LEEDS ..... *Winn.* A
LEICESTER..... *Clyde.* ‡
LEICESTER.. *Mid. Counties.* ‡N
LEWES..... *County.* AN
LICHFIELD..... *Jones.* A
LINCOLN..... *Wright.* A
LITTL'H'MPT'N *Littl'h'mpt'n.* A
LIVERPOOL *Donkin & Co., Ld.* A
LLANDUDNO ... *Llandudno.* *‡N
LOSTWITHIEL.... *Skelton.* A
LUDLOW ..... *Temeside.* *‡N
LYMINGTON ..... *Vince.*
LYNDHURST..... *Imperial.* AN
LYTHAM..... *Williams.* A
MACCLESFIELD.. *Ford.* ‡
MAIDENHEAD ... *Heybourn.* ‡
MALTON..... *Robson.* A
MALVERN ..... *Ranford.* AN
MANCHESTER.... *Daimler.* ††
MARGATE..... *Simpson.* ††
MARGATE..... *Fori.* AN
MKT. HARBORO'.... *Stevens.* ††
MKT. HARBORO'... *Pytchley.*
MARLBOROUGH.. *Milburn.* A
MARLOW..... *Drye.* A
MATLOCK ..... *Hall.* A
MELTON M'B'Y... *Sharman.* *‡
MIDDLESBROUGH... *Burr.* ††
MIDHURST..... *Peate.*
MILFORD-ON-SEA *Keeping.*
MILNTHORPE ... *Fawcett.* A
MINEHEAD ..... *Capron.* A
MORECAMBE .... *Harrison.* *‡
NANTWICH ..... *Thornewill.*
NEWARK ..... *Harrison.* A
NEWARK ..... *Mather.* A
NEWBURY..... *Stradling.* A
NEWBURY..... *Martin.* AN
NEWC'STLE-ON-TYNE... *Hale.* ††
N'WC'STL'-'N-TYN' *Hodgson.* AN
NEWMARKET ... *Crisswell.* A
NEWPORT... ... *Young.* A
NEWPORT, MON... *Newport.* A
NORTHAMPTON.. *Pytchley.*
NORWICH. ... *Mann Egerton.* A
NOTTINGHAM... *Daimler.* A
NUNEATON ..... *Nuneaton.* *‡
OAKHAM ..... *Hinman.* A
OBAN ..... *MacDougall.* ‡N
OLDHAM..... *Oldham.* A
OSWESTRY..... *Ellis.* A
OXFORD..... *Coxeter.* A
OXFORD..... *Morris.* AN
OXFORD..... *Midland.* *
PENRITH ..... *Tinkler.* A
PERTH..... *Croall.* A
PETERBOROUGH . *City.* AN
PETERSFIELD.... *Britnell.* A
PITLOCHRY..... *Blues.* *‡
PLYMOUTH..... *Andrew.* A
PORTHCAWL .... *Grace.* *N
PRESTON ..... *Lancashire.* A
PURLEY..... *Purley.* A
READING ..... *Vincent.* AN
REDHILL..... *Chalmers.* ††
RINGWOOD..... *Roberts.* *‡
RIPON ..... *Croft.*
ROCHESTER ..... *Robins.* *‡
ROMFORD ..... *Romford.* A
ROPLEY ..... *Vickery.* A
ROYSTON..... *Varty.* ‡
ST. ALBANS ..... *Waters.* *‡
ST. ANDREWS ... *Wilson.* ††
ST. ANDREWS ... *Duncan.* *N
ST. LEONARDS... *Skinners.* AN
SALE ..... *Robertson.* A
SANDWICH..... *Allgood.*
SCARBOROUGH ... *Walker.* *†
SEAFORD ..... *Seaford.*
SEATON..... *Trivett.* ‡
SEVENOAKS..... *Humphrey.*
SHEFFIELD ..... *Crowens.*
SIDMOUTH ..... *Breach.* *‡N
SKIPTON..... *Lancasters.*
SLOUGH ..... *Fullbrook.*
SOUTHAMPTON ... *Parsons.* ††N
SOUTHEND..... *Austin.* *‡
SOUTHEND..... *Spencer.* A
SOUTHPORT ..... *Woodhead.* A
SOUTHSEA..... *Southsea.* A
STAMFORD..... *Stamford.*
STANSTED..... *Jardine.* *
STIRLING..... *Grampian.*
STONE..... *Evans.*
STOURBRIDGE... *Weaver.*
STOWMARKET ... *Stowmarket.*
STRATFORD-ON-AVON. *Bolland.*
SURBITON ..... *Abbott.*
SWANSEA..... *Ace.* A
TAUNTON ..... *Allen.* AN
TENBY..... *Ace.* A
TEWKESBURY .... *Alldridge.* *‡N
THORNBURY ..... *Bridgwater.* ‡
TONBRIDGE..... *Hall.*
TROON..... *Troon.* A
TUNBRIDGE WELLS... *Rawson.*
TUNBR'DGE W'LLS *St'v'ns'n.* AN
WALTON-ON-THAMES.. *Turner.*
WARMINSTER... *Warminster.* A
WARRINGTON.... *Bellian.* *‡
W. HARTLEPOOL... *Robinson.*
WEYBRIDGE ..... *Shanks.* AN
WEYMOUTH ..... *Tilley.*
WHITBY..... *Briggs.*
WICK ..... *Waters.*
WIMBORNE..... *Dibben.*
WINDERMERE.... *Croft.*
WINDSOR ..... *Berks.*
WOKING ... . *Heath.*
WOLVERHAMPTON... *Barnett.*
WOOLER ..... *Scott.*
WORCESTER..... *Central.*
WREXHAM..... *Wrexham.* A
YARMOUTH..... *Yarmouth.* A
YORK..... *Lloyd.* *†

LONDON EXITS—

NORTH OF THE THAMES.

Going West (Uxbridge Road):—Lancaster Gate Station. Acton Vale (Panhard).
Going West (Bath Road):—Fulham Road (St. George's). 89, Cromwell Road, Addison Bridge, Hammersmith (Cole). Chiswick.
Going North-West (Edgware Road):—Willesden Lane (Crowe). A Cricklewood (Hartley). †
Going North (Finchley Road):—Finchley Road (opposite the Library). A Golder's Green. The Mall, Church End (Burgess). † ‡ North Finchley (Richardson).
Going East (Whitechapel Road):—Bow Station (Addington Road). †‡ 418, Romford Road.
Going South:—Sydney Street (Cadogan). A Vauxhall Bridge Road (Hobson). Gloucester Road, Earl's Court Road. Eaton Sq. (Caroline Street).

SOUTH OF THE THAMES.

Hammersmith Bridge:—Castlenau (Boon). Ranelagh.
Putney Bridge:—96, Upper Richmond Road. Wimbledon Common. A
Vauxhall Bridge:—Camberwell New Road (Ariel). A Peckham (Tilling). Lewisham (295, High Street). Sydenham. Upper Norwood (75, Church Road). Streatham (47, Streatham Hill). A

WEST CENTRAL.

Blenheim Street (Armstrong W.). Wardour Street (London M.G.). Jermyn Street. Piccadilly (Brick Street). M.S.L. (Long Acre).

NOTICE TO AUTO. GARAGES.

A limited number of special copies of any of the "Auto." Key-Maps, mounted on cards for affixing to notice boards, have been prepared and will be supplied to Auto. Garages who apply immediately for them and enclose sixpence for each map ordered.

Regular prices: on paper, 4d.; linen, 1/-. Plaques, 2/6.

Apply to the Manager, "Auto." Office, 44, St. Martin's Lane, W.C.

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TRUE ECONOMY IS TO BUY THE VERY BEST.

SHEFFIELD SIMPLEX

"Made in Sheffield where the steel comes from."

¶ "THE INTERESTING 30 H.P. CHASSIS, WHICH WAS ONE OF THE FINEST EXHIBITS EVER SEEN IN ANY MOTOR EXHIBITION . . . . . IT IS UNDOUBTEDLY THE LAST WORD IN SIX-CYLINDER ENGINES AND HAS BEEN REFERRED TO BY MORE THAN ONE EXPERT AS . . . . . .

THE FINEST SIX-CYLINDER ENGINE IN EXISTENCE

. . . . . WE SHOULD LIKE TO OFFER OUR CONGRATULATIONS TO THE SHEFFIELD-SIMPLEX COMPANY ON THE HIGH-CLASS NATURE OF THEIR CAR."

Car Illustrated, Nov. 27/12.

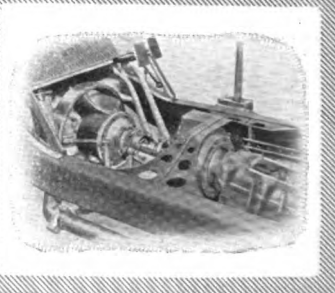
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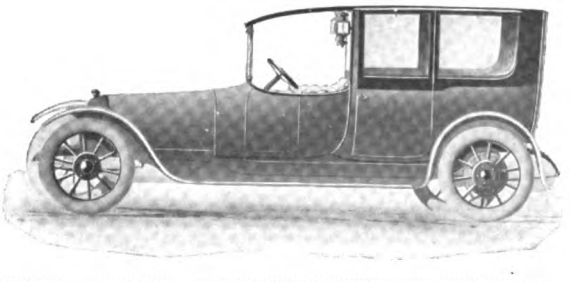
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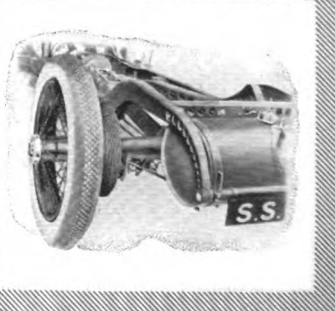




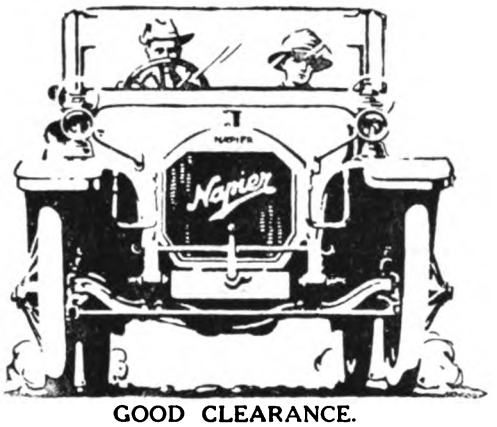








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GOOD CLEARANCE.

The FAMOUS COLONIAL NAPIER

The Proved Best Cars

18 CONVINCING FACTS

why you should buy the Extra Strong Colonial Napier for use in over-sea countries.

1. It is not intended to compete with "cheaply made" cars, but is made to last, and is guaranteed for three years.
2. It has 11 in. Ground Clearance with 915 × 105 (standard size) tyres.
3. It has larger and more expensive tyres than the standard model, but not excessively large wheels.
4. The springs are specially long and strong, and the transverse spring is fitted at the back to ensure easy riding and to prevent distortion of the frame.
5. The Carburetter is high up above the frame, so as to enable the car to go through deep water. An extra air regulator is fitted. A fine metal gauze strainer is fitted to prevent any dust from entering engine.
6. The fly-wheel is in front of the engine, so that in going over obstructions the front road wheels lift the fly-wheel over the obstruction, whereas in cars where the fly-wheel is at the back of the engine, the fly-wheel would drop on the top of the obstruction.
7. Both the frame and the front axle are of specially increased strength.
8. Low gear is fitted, which enables the car to negotiate soft and sandy places, and to ascend very steep inclines, and climb out of river beds.
9. The back axle casing is especially strong.
10. Petrol is fed from a tank by pressure, ensuring a perfect petrol supply when ascending the steepest gradient.
11. The radiator and water pipes are of very large dimensions, and a water pump is fitted to ensure perfect cooling in the Tropics.
12. Automatic forced lubrication to ensure equal and perfect oiling to bearing surfaces.
13. Grease cups instead of oilers fitted to all spring shackles.
14. Mechanism and all working parts enclosed against dirt, grit, or dust.
15. Internal expansion brakes on back hubs entirely enclosed against dust or mud.
16. Metal to metal clutch running in oil. No leather is used, as leather is affected by heat, climate, and water.
17. Special steering lock enabling the car to be turned in a small space.
18. We would also point out that this car is British and guaranteed for three years, which compares very favourably with those cars made by other manufacturers, which can only be guaranteed for a few months.

CHASSIS PRICES WITH TYRES.

59·9 h.p., six cylinder	£1,095	15 h.p., extra strong Colonial, four cylinder	£398
38·4 h.p., six cylinder	£850	15 h.p., 8' 10" wheelbase for ordinary use, four cylinder	£365
30 h.p., six cylinder	£595	15 h.p., 8' 10" wheelbase for Colonial use, four cylinder	£370
15 h.p., Model de Luxe, four cylinder	£395		

For 1913 with all models (except the 8' 10" wheelbase 15 h.p.) we include Rudge-Whitworth detachable Wire Wheels, which save your Tyres.

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10/16 h.p. Chassis (750 by 85 Tyres) £220

15/22 h.p. Chassis (820 by 120 Rudge-Whitworth Wheels) £335

STOEWERS (London) Ld., 18, Brompton Road, S.W.



You're always safe on

'SHELL'

Spring, Summer, Autumn, Winter

OBTAINABLE EVERYWHERE.

See that the can is sealed.

181B

Raybestos BRAKE LINING



Each cord in "RAYBESTOS" is composed of two fine strands of hardened brass wire, with three strands of asbestos so interwoven that each cord forms a unit in the structure. This method of manufacture provides a flexibility that is not possessed by any other brake lining. Result, more uniform wearing surface and longer life. The smooth action which is the feature of "RAYBESTOS" is due to this. **Used by all the leading Motor Cab Co.'s.** Sample and particulars on request.

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2 OPINIONS

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of would-be purchasers of

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Ref. No. 173.

2. "The Best Car; a very just title."

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Telegrams:— "Rolhead" Reg., London. ROLLS-ROYCE, LIMITED, 14 & 15, Conduit St., London, W. Telephones:— Gerrard 1654, 1655 & 1656.

EUROPE (except for the United Kingdom): Automobiles Rolls-Royce, 102, Avenue de Champs-Elysées, Paris.

INDIA: Rolls-Royce, Limited, Mayo Road, Fort, Bombay.

The following firms who purchase direct from us have sole selling rights of our cars in their respective districts:—

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The highly creditable character of this success is not detracted from by the fact that an accident partly wrecked the test car and wholly wrecked the chances of the Victor Tyre, which looked well set for as decisive a win as it scored in the first (steel-studded non-skid) round.

We do not complain because luck was against us. The Tyre Trial is a sporting event in which Victor Tyres are matched against the best others on the market. So far it has proved its worth, and our claim for it as a better and more economical tyre than any of its competitors.

One round remains—of plain tread tyres. Take advantage of the sporting discounts offered on all Victor Tyres. Full particulars on application.

We have received many recent letters from customers complaining that some motor agents decline to supply Victor Tyres. Apparently an attempt is being made to boycott the Victor in the country as it was boycotted at Olympia. The attempt will fail, because the Victor is the best tyre by ANY process of comparison. Any motorist unable to obtain Victor Tyres through his local agent can rely upon getting them by next passenger train, after receipt of postcard, telegram, or letter, if desired. American sizes made.

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Eagle Wharf Road, City Road, London, N.
Telephone—3497 North. Telegraphic & Cable Address—"Signature, Hox, London."
West End Offices and Showrooms:
PEMBROKE HOUSE, 133, OXFORD STREET, W.
Telephone—City 7811.

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is guaranteed to give perfect carburation, together with greater power and flexibility and a diminished petrol consumption over any other known make of carburetter.

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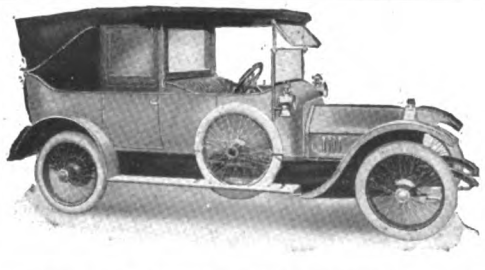
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"When the 15 h.p. and 20-25 h.p. Crossley Cars were first introduced the technical critics said: Here indeed is a car designed by engineers and worthy of the Crossley reputation. Now that these models have stood their test so long and so satisfactorily in the hands of the public, the experienced user can say that the opinions of the technical critic have been fully carried out in practice on the road, and, if further proof of this is necessary, it can be found in the long list of hill-climbing and competition successes, which have placed the Crossley Cars in the very first rank of modern high-class automobiles."

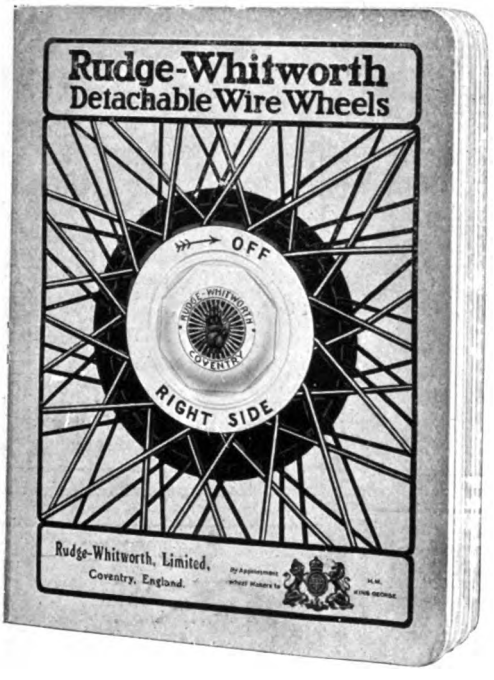
If you will write to us it will be a pleasure to send you full particulars and specifications.

CROSSLEY MOTORS, LD.

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Rudge-Whitworth Detachable Wire Wheels

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The new 1913 Catalogue and Price List of Rudge-Whitworth Detachable Wire Wheels is post free for the asking.

It gives full details of the Wheels and many interesting details about racing, and contains four fine coloured sporting prints.

Send for a copy now to

Rudge-Whitworth, Ltd., (Dept. 5), Coventry.

What Dr. A. M. Low thinks of **Vacuum Mobiloil**

The following are extracts from a gratifying letter which we have just received from that well-known scientific engineer, Dr. A. M. Low, anent his experience with "Vacuum Mobiloil" on his new "Low Engine," after many comparative tests on the road and in his laboratory :—

"I never dared to hope that a straight forward oil would be able to stand up to the work, but being prevailed upon, I tried some of your Vacuum A with somewhat remarkable results. The oil maintained its efficiency . . . . . the engine could be started after a run without any change of oil after using the engine for 50 miles and then letting it stand for a week."

Why not give it a comparative test yourself ?

It can be obtained everywhere.

VACUUM OIL CO., LTD.,
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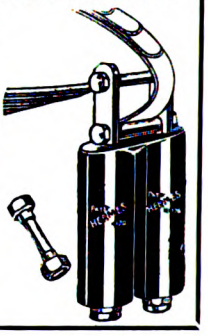
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65 m/m Tyres, 6d. each.
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MOHURST EXHAUST WHISTLES

Size m/m	30	35	40	45	50
	9/-	10/-	11/-	12/-	13/-

Self Cleaning. Simple. A good road clearer.
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Telephone: 4522 City (6 lines). Telegrams: "Motoschool, London."

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IXION
Motor Cycles
FOR
Speed,
Reliability,
Passenger Work.
SIX DISTINCT MODELS.

Our Catalogue will — interest YOU. —

The Ixion Motor Manufacturing Co.,
GT. TINDAL ST., BIRMINGHAM.

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BIRMINGHAM.



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ENAMELLED NAME PLATES for RADIATORS, DASH BOARDS, etc.
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EVERY CAR SOLD WITH A GUARANTEE.
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FOR DIRTY HANDS.
4D. TABLET 4D.
SIMPLY WASH THE HANDS
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BEAUTIFULLY SOFT AND CLEAN.
SAMPLE BOX OF 3 TABLETS 1/-, POST FREE.
H. J. McNAE & Co., Soap Manufacturers,
Established —1871.—
SAXON ROAD, NORTH BOW, LONDON, E.

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The "AUTO" DIRECTORY of CARS

(*Copyright.*)

R.A.C. = Royal Automobile Club Rating on which Cars are Taxed.

H.P. = Horse Power. **Sp** = Speeds. * **See Advertisement elsewhere.** **Wh-B** = Wheel-base. **B** = Bore.

Cyl = Cylinders. **£** = Chassis price, except where otherwise stated in a footnote. **S** = Stroke.

Your courtesy will be appreciated by all, if you write "Auto" on your letters to advertisers.

Taxes

Pay yearly at Post Office.

MAX. (R.A.C. RATING.)	EQUIVALENT BORE.	£	s.	d.
6½ ...	102·36 (1 cyl.) ...	2	2	0
12 ...	69·55 (4 ,,) ...	3	3	0
16 ...	80·31 (4 ,,) ...	4	4	0
26 ...	102·38 (4 ,,) ...	6	6	0
33 ...	94·18 (6 ,,) ...	8	8	0
40 ...	103·69 (6 ,,) ...	10	10	0
60 ...	126·99 (6 ,,) ...	21	0	0
Over 60 h.p.	...	42	0	0
Chauffeur	...	0	15	0
Coat of Arms	...	2	2	0
Pay Local Authority.				
Registration (once only)	...	1	0	0
Licence (per ann.) ...	...	0	5	0
Transfer of Registration	...	0	5	0

Aberdonia: Cumberland Ave., Park Royal.
Adams: 107, Gt. Portland Street, W.
Adem: St. George's House, Conduit St., W.

Adler

Morgan & Co., Ltd.,
Long Acre, London, W.C.
Gerrard 1961.
"Cee Spring, London."

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B	£*
10	10	4	65	98	4	8′ 2″	280
12	13·9	4	75	103	4	8′ 10″	330
14–18	13·9	4	75	120	4	9′ 2½″	370
15–25	15	4	80	130	4	9′ 4½″	500
25–35	20·9	4	92	148	4	9′ 10½″	625
35–45	30	4	114	160	4	10′ 6″	795

* Prices are for complete cars.

Albion: 21, Upper Rathbone Place, W.
Alda: 92, Gloucester Rd., S.W.
Alldays: 58, Holborn Viaduct.
Aquila: Old Barrack Yard, Knightsbridge.

Argyll

* Argylls, Ltd.,
Alexandria, Scotland.
"Argylls, Alexandria."
Hillhead (Glasgow) 273 & 274.

London:—
6, Gt. Marlborough St., W.
"Carguiless, London."
Gerrard 3374.

Standard Models for 1913.

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B	£
12–18	12·8	4	72	120	4	9′ 0″	285
*15–30	15·9	4	80	130	4	9′ 10″	450
*25–50	25·8	4	100	130	4	10′ 6″	615

(* Sleeve valve engine models.)

Ariel

Ariel Motors, Ltd.
324, Camberwell New Road, London, S.E.
"Arieloto, London."
Brixton 1251.

Standard Models.

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B.	£
8	9	2 V	85	85	2	7′ 6″	140
12	14·3	4	76	120	3	8′ 3″	255
						8′ 8″	280
15	15·8	4	80	130	3	9′ 6″	325
20	20·1	4	90	130	4	9′ 8″	395
25	24·8	4	100	130	4	9′ 8″	450

Armstrong Whitworth

Sir W. G. Armstrong, Whitworth & Co., Ltd.,
Elswick Works,
Newcastle-on-Tyne.
"Elswick, Newcastle."
Newcastle, Central 1771.

London—
3, Blenheim Street,
New Bond Street, W.
"Elswickian, London."
Gerrard 8875.

Manchester—
114, Deansgate.
"Elswick, Manchester."
Manchester, Central 2950.

Standard Models. *British.*

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B	£
15–20	15·9	4	80	135	4	9′ 8″	375
17–25	17·9	4	85	135	4	9′ 8″	435
25–30	25·5	4	100	120	4	10′ 6″	550
30–50	30·2	6	90	150	4	11′ 9″	850

Arrol-Johnston

* Arrol-Johnston, Ltd.,
Underwood, Paisley.
"Mocar, Paisley."
Paisley 332.

London Agents:—
The Long Acre Autocar Co.,
127, Long Acre, W.C.
"Juniotav, London."
Gerrard 5011.

Standard Models. *British.*

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B	£
11·9	11·9	4	69	120	4	9′ 2′	265
15·9	15·9	4	80	140	4	10′ 3″	335
23·9	23·9	6	80	120	4	11′ 1″	470

Private purchasers can consult the Technical Editor free of charge by letter to the "Auto" Office, 44, St. Martin's Lane, W.C.

AUSTIN

* The Austin Motor Co., Ltd.,
479, 481, 482, Oxford Street, W.
"Austinette, London."
Gerrard 797.

Works:—
Longbridge Works,
Northfield, nr. Birmingham.
"Speedily, Northfield."
Kings Norton 68.

Standard Models. *British.*

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B	£
10	14·3	4	76	89	4	8′ 3″	260
15	19·6	4	89	115	4	9′ 3″	330
18–24	30·0	4	110	127	4	9′ 11″	480
50	45·0	6	110	127	4	11′ 6″	650

Austro-Daimler, 112, Gt. Portland St., W.

BENZ

The Brompton Motor Co., Ltd.,
Sole Concessionnaire for Benz Cars in the United Kingdom,
78-80, Brompton Road,
London, S.W.
"Halfvolley, London."
Kensington, 3280 (4 lines).

Standard Models.

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B	£
12–20		4	72	120	4	9′ 4½″	325
15–25		4	80	130	4	10′ 0″	450
15–25		4	80	130	4	10′ 4″	450
25–30		4	90	140	4	10′ 6″	575
28–35		4	95	140	4	10′ 6″	625
35–45		4	120	144	4	11′ 1″	775
40–65		4	130	160	4	11′ 1″	950
100		4	130	190	4	11′ 5″	1150
200		4	185	200	4	9′ 1″	1800* / 1900†

* As two seater.
† As four seater.

All chassis have direct drive on top speed, leather clutch, and live axle transmission, except 200 h.p., which is chain driven, and are supplied with sloping bonnets and round dashboards.

BENZ SÖHNE

Darby & Weber, Ltd.,
118, Great Portland Street,
London, W.
Sole Concessionnaires for Benz Sohne Cars for United Kingdom.
"Exconcesli, London."
Gerrard 1967.

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B	£
16–20	15·9	4	80	130	4	9′ 8″	380
						10′ 6″	390
17·9	17·9	4	85	115	4	9′ 8″	390
20–30	—	4	90	140	4	10′ 9″	525

All Models pressure-fed.

Baguley: 2, Albemarle Street, W.
Bayard: 98, High St., Marylebone, W.
Bedford: 136, Long Acre, W.C.
Bell: 7, Warren Street, W.

BERLIET

* Berliet Motors, Ltd.,
40, Sackville Street, W.
"Horselaugh, London."
Gerrard 5713 (3 lines).

Works:—
156, Westminster Bridge Rd., S.E.

Standard Models.

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B	£
12	12·2	4	70	100	4	9′ 1″	285
15	15·9	4	80	120	4	9′ 7″	370
						10′ 5″	395†
18	20·1	4	90	120	4	10′ 6″	460
						11′ 0″	460
25	24·8	4	100	140	4	10′ 6″	495
						11′ 0″	495
40	35·7	4	120	140	4	10′ 3″	650
						11′ 0″	650

† Dropped frame.

Belsize: Deans Yard, Cavendish Sq. Mayfair 1489 & Mayfair 5477.
"Belsizency, London."
Bentall: Maldon, Essex.
P.O. Maldon 2A "Bentall, Heybridge."
Bianchi: 334, Euston Road, N.W.
Bollee: 28, Long Acre, W.C.
Brasier: 78, High St., Marylebone, W.
Brenna: 162, Gt. Portland Street, W.
Briton: 24, Long Acre, W.C.
Brush: 212, Great Portland Street, W.
Brooke: Lowestoft.
B.S.A.: 72, New Bond Street, W.
Buchet: 69, Drayton Gardens, S.W.
Buick: 136, Long Acre, W.C.
Bugatti: 4, Redfield Lane, S.W.

Cadillac

* F. S. Bennett, Ltd.,
219, Shaftesbury Avenue, W.
"Efisben, London."
Gerrard 5929.

Standard Model.

H.P.	R.A.C.	Cyl	B	S	Sp	WH-B	£
20–30	32·4	4	4½	5½	3	120″	430

Price includes electric starter and electric lamps.

Calthorpe: 1, Endell Street, W.C.
Chalmers: 45, Gt. Marlborough St., W.
Chambers: Cuba Street Works, Belfast.

The "Auto" Directory is published every week. For advertisement rates, address the Manager, 44, St. Martin's Lane, W.C. Telephone—Gerrard 1828. Telegraphic Address—"Truditur, London."

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"AUTO" DIRECTORY. CAR SECTION—*contd.*

Charron

Charron Cars,
33, Wardour Street,
Leicester Square, W.
"Automoteur Telew, London."
Gerrard 1426 (4 lines).

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	10'5	4	65	120	3	8' 6"	275
15	15'8	4	80	120	3	9' 4½"	315
					4	9' 4½"	335
22	22'4	4	95	130	4	10' 6"	445
30	30'0	4	110	150	4	11' 3½"	580
33	33'6	6	95	130	4	11' 7"	600

Chenard-Walcker: 174, Gt. Portland St., W. Mayfair 1290. "Autochenar, London."
Cheswold: E. W. Jackson, Doncaster.

Clement

The Clement Motor Co., Ltd.,
3, Leicester Street,
Leicester Square, W.C.
"Swellish, London."
Gerrard 1917 & 1918.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-14	13'9	4	75	110	4	9' 0"	290
14-18	20'1	4	90	120	4	10' 0"	350
25-30	28'9	4	107	130	4	10' 6"	500
30-35	32'8	4	115	140	4	10' 9"	550

C. Bayard: 98, High Street, Marylebone.
Clyde: Wait & Co., Leicester.
Colibri: 404, Euston Road, N.W.
Coltman: Midland Iron Works, Loughborough.
Columbia: 212, Gt. Portland Street, W.
Cooper: King's Lyan.
Cottin: 9, Sidney Street, Cambridge.
Crespelle: 115, Fulham Road, S.W.

Crossley

Crossley Motors, Ltd.,
Gorton, Manchester.
"Motors, Gorton."
190 Openshaw.
London—
Charles Jarrott & Letts, Ltd.,
45, Gt. Marlborough Street, W.
"Jemidar, London."
Gerrard 2362.
Standard Models. *British.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	15'6	4	79'4	120	4	9' 7"	350
						10' 7"	370
20-25	25'6	4	102	140	4	10' 6"	475
						11' 3"	500

Daimler

* The Daimler Company, Ltd.,
Coventry.
27, Pall Mall, S.W.
"Daimler, London."
Gerrard 930.
Works:—
Coventry.
"Daimler, Coventry."
Coventry 505.
Standard Models. *British.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15	15'9	4	80	130	3	10' 3½"	380
20	20'1	4	90	130	4	10' 3½"	430
26	25'4	4	101'5	140	4	11' 0"	575
38	38'1	4	124	130	4	11' 0"	625
30	30'1	6	90	130	4	11' 6½"	650
*	38'1	6	101'5	140	4	11' 11"	850

* Special Model.

Darracq: Walnut Tree Walk, S.E. Hop 1234. "Darracqs, London."

Siddeley-Deasy

The Deasy Motor Car Manufacturing Co., Ltd., Coventry.
"Deasy, Coventry."
Coventry 533.
London Agents:—
The Connaught Motor & Carriage Co., Ltd., 27, Long Acre, W.C.
"Voitures, London."
440 & 441 City.
London Repair Shops and Garage (under Coy.'s own management):—
30-41, Brewery Road, Islington, N.
"Deasy, London."
North 3387.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
*12	13'96	4	75	114	3	9' 3"	275
14-20	15'9	4	80	130	4	10' 4"	395
18-24	20'1	4	90	130	4	10' 8"	460
18-24	—	4	90	130	4	10' 10"	465
24-30	24'8	6	90	130	4	11' 3"	685

* This Model is known as the "Stoneleigh."

De Dion: 10, Gt. Marlborough St., W.

Delage

London & Parisian Motor Car Co., Ltd.,
87, Davies Street, London, W.
"Corelio, London."
Mayfair 4224 & 4225.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12	10'5	4	65	110	3	7' 8"	221
						9' 4"	248
14	13'9	4	75	120	3	9' 4"	292
						9' 9"	318
15'9	15'9	6	65	125	3	9' 4"	340
						10' 7"	358

Delahaye: 16, Pall Mall, S.W.

Delaunay Belleville

Delaunay-Belleville Automobiles (England), Ltd.,
49, Pall Mall, S.W.
"Autodelaun, London."
Mayfair 5258.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
25	25'4	4	100	140	4 & R	10' 6"	540
26	26'9	6	85	130	4 & R	10' 6"	600
37	37'2	6	100	140	4 & R	11' 2½"	740
25	25'4	4	100	140	4 & R	10' 6"	550
26	26'9	6	85	130	4 & R	10' 6"	610†
37	37'2	6	100	140	4 & R	11' 2½"	740†
17	17'9	4	85	130	4 & R	9' 9"	420†
19	19'3	6	72	120	4 & R	10' 0"	480

† Colonial models.

Dennis: Onslow Street, Guildford.
D.F.P.: Hanover Court, Hanover Sq., W.
Dodson: 34, Old Bond Street, W.
Enfield: McCurd's, Store Street, W.
Excelsior: 16, Pall Mall, S.W.
Everitt: 89, Wigmore Street, W.
F.A.B.: 15, New Bond Street, W.
Fafnir: 211, Upper Thames Street, E.C.
Fiat: 37, Long Acre, W.C.
F.L.: R. M. Wright, Lincoln.
F.N.: 45, Clipstone Street, W.
Ford: 55, Shaftesbury Avenue, W.
Forest: West Derby, Liverpool.
Foy Steele: 35, Sackville Street, W.
Germain: 45, Horseferry Road, S.W.

Gladiator

Vinot Cars, Ltd.,
147, Great Portland Street, W.
"Vinot, London."
Gerrard 6760.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12'1	12'1	4	70	110	3	8' 7"	295*
						9' 0"	335†
15'9	15'9	4	80	130	3	9' 10"	330
18-28	25'3	4	101	130	3	10' 0"	460

* Complete two-seater.
† Complete four-seater.

Globe: 37B, Duke Street, Westminster.
Gobron: 173, Piccadilly, W.
Gregoire: 2, Halkin Place, S.W.
G.W.K.: Datchet, Bucks.
Hansa: 167, Shaftesbury Avenue.
Hillman: Pinley, Coventry.
Hispano-Suiza: 118, Shaftesbury Av., W.C.
H.L.: 17, Hanover Square, W.
Hobson: 16, Pall Mall, S.W.

Hampton

Bradbury, Rinman & Co., Ltd.,
230, Shaftesbury Avenue, W.C.
Gerrard 4176.
Standard Model. *British.*

H.P.	R.A.C.	CYL.	B	S	SP	WH-B	£
11'9	11'9	4	65	130	3	9' 0"	195
14'9	14'9	4	75	120	3	9' 6"	245

Including Sankey detachable wheels.

Hotchkiss

London & Parisian Motor Car Co., Ltd.,
87, Davies Street, London, W.
"Corelio, London."
Mayfair 4224 & 4225.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-16	15'9	4	80	120	4	9' 6"	360
18-22	22'4	4	95	130	4	10' 6"	480
20-30	30	4	110	150	4	11' 0"	600
20-36	33'6	6	95	130	4	11' 2"	645

Hudson: 479, Oxford Street, W.

Humber

* Humber, Ltd., Coventry.
"Humber, Coventry."
Coventry 522.
London—
Holborn Circus, E.C.
"Humber, London."
Holborn 5560 & 5561.
60-64, Brompton Road, S.W.
"Humbertie, London."
Kensington 1981.
London Repair Works:—
Canterbury Road, Kilburn, N.W.
Paddington 1397.
Standard Models. *British.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
11	11'9	4	69	130	4	8' 4"	295
11	11'9	4	69	130	,,	8' 11"	310
14	13'9	4	75	130	,,	9' 2"	340
14	13'9	4	75	130	,,	9' 2"	355
20	20'1	4	90	120	,,	9' 4"	430
20	20'1	4	90	120	,,	10' 4"	445
28	27'3	4	105	140	,,	9' 10"	490
28	27'3	4	105	140	,,	9' 10"	515
Humberette							
—	2	84	90	3	7' 3"		125

Above prices are for complete cars.

Hupmobile: 334, Euston Road, N.W.
Hurtu: 322A, Camberwell New Road, S.E.
Imperia: 76, York St., Westminster, S.W.
Iris: 4, Marshall Street, W.
Isotta Fraschini: 199, Piccadilly, W.
Itala: 71, St. James's Street, S.W.
Ivor: 10, Poland Street, W.
Jackson: High St., Notting Hill Gate, W.
Komnick: 118, Gt. Portland Street.
K.R.I.T.: 127, Long Acre, W.C.

Loreley

The Loreley Autocar Co.,
Sole Concessionnaires for "Loreley" Cars for the U.K. and British Colonies.
386, Euston Road, London, N.W.
3172 North.
18-19, Queenhithe, E.C. (Export only). 4304 Central.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-14	12'1	4	70	102	3	9' 2"	240
12-14	13'4	6	60	92	3	9' 2"	260
15	14'3	4	76	115	3	9' 7"	285
18-22	18'2	6	70	113	3	9' 10"	340

Above Chassis prices include tyres, wings and footboards.
All models have monobloc engines, self-advancing h.t. magneto, and forced lubrication through hollow crankshaft.

La Buire: 115, Gt. Portland Street, W.
Lagonda: 176, Piccadilly, W.
Lanchester: 95, New Bond Street.
Lancia: 26, Albemarle Street, W.
Gerrard 2114. "Cialanic, London."
Le Gui: 28, Frith Street, W.C.
Licorne: 18, Berkeley Street, W.

Lorraine Dietrich

* Soc. Lorraine de Dietrich et Cie,
45, Gt. Marlborough St., W.
"Jemidar, London." Gerrard 2362.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£†
12-16	13'9	4	75	120	4	9' 4"	300
							310§
18-20	20'1	4	90	130	4	10' 5"	405
							415§
40-75	38'8	4	125	170	4	—	760
							780§

† Without tyres.
§ Inclined steering.

Lotis: 301, Widdrington Rd., Coventry.
M.A.F.: 118, Gt. Portland Street.
Marathon: 173, Piccadilly, W.
Marlborough: 8, Gt. Marlborough St., W.
Martini: 103, Long Acre.

Mass

* Mass Cars,
99, Ladbroke Rd., Notting Hill, W.
"Masskah, London."
Paddington 2461.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10	13'5	4	74	100	3	8' 2"	200
12	13'5	4	75	140	3	8' 8"	250
15	20'1	4	90	150	3	9' 9"	335
20	30	4	110	130	3	10' 6"	475
20-30	24	6	80	180	3	10' 8"	525

Mathis: 36, Long Acre, W.C.
Maudslay: 12, Woodstock Street. W.
Maxwell: 212, Gt. Portland St., W.

Mercédès

Milnes-Daimler, Ltd.,
Showroom:—
132, Long Acre, W.C. 273 Gerrard.
Head Office, Stores and Works:—
221, Tottenham Court Road, W.
8910-1 Gerrard, 8821 Central.
"Milnesie, London."
Mercédès Live Axle Models for 1912.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12-15	12'1	4	70	120	4	9' 0½"	350†
15-20	15'9	4	80	130	4	9' 11"	450†
25-30	20'1	4	90	140	4	9' 11"	600†
35-40	24'8	4	100	130	4	10' 5½"	750†§
35-40	30'0	4	110	150	4	11' 3"	725†
45-50	35'7	4	120	160	4	11' 3"	825†
35-40	30'0	4	110	140	4	11' 4½"	750‡§
45-50	35'7	4	120	160	4	11' 4½"	850‡
65-70	48'6	4	140	160	4	11' 6½"	1125‡
80-90	41'9	4	130	180	4	11' 6½"	1275‡

† Live axle.
‡ Chain drive, including chain cases.
§ Knight engine.
‖ Colonial model.

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"AUTO" DIRECTORY. CAR SECTION—*contd.*

METALLURGIQUE

* Metallurgique, Ltd.,
110, High St., Manchester Sq., W.
Standard Models. *Belgian.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	13·9	4	75	96	4	9′ 0″	270
15–20	15·9	4	80	130	4	9′ 7″	385
20–30	20·1	4	90	140	4	11′ 0″	495
20–30	20·1	4	90	140	4	10′ 5″	525†
26–50	25·8	4	102	150	4	11′ 6″	625
26–50	25·8	4	102	150	4	11′ 7″	695†
38–80	38·8	4	125	150	4	12′ 0″	875
						11′ 0″	925†

† Light models.

Metz Lion: 177, Gt. Portland Street, W.
Miesse: 4, Hans Road, S.W.
Minerva: 40, Holborn Viaduct, E.C.
Mitchell: 171, Gt. Portland St., W.
Mors: 119, Long Acre.
Motobloc: 188, Gt. Portland St., W.

Napier

* S. F. Edge, Ltd.,
14, New Burlington Street, W.
"Nitrifier, London."
Gerrard 8926.
Standard Models. *British*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
15A	16·9	4	3½	5	3	8′ 10″	365
15D	16·9	4	3½	5	3	9′ 10″	395
15	16·9	4	3½	5	4	9′ 10″	410
15E	16·9	4	3½	5	3	9′ 10″	398
15	16·9	4	3½	5	4	9′ 10″	413
30	25·6	6	3½	5	3	10′ 8″	595
38·4	38·4	6	4	5	3	11′ 6″	850
59·9	59·9	6	5	5	3	11′ 2″	1095

15A, bevel only; 15B, Colonial model, bevel only, £370; 15C, for cabs and commercial vehicles, bevel only, £365; 15D, *Model de Luxe*, bevel or worm; 15E, extra strong Colonial model, bevel only.
Detachable wire wheels included in above prices, all models, except 8′ 10″ wheelbase 15 h.p.

N.A.G.: 4, Gt. Marlborough Street, W.
Nazzaro: 34, Knightsbridge, W.

N.E.C.

* New Engine (Motor) Co., Ltd.,
9, Grafton Street, Bond Street, W.
Gerrard 3150.
Works:
Acton Hill, Acton, W.
Ealing 100.
Standard Models. *British.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
40	39·9	4	5	4½	4	10′ 9″ / 11′ 6″	780
30	32·5	4	4½	4½	4	10′ 6″ / 11′ 0″	640

Niclausse: 28, Long Acre, W.C.
N.S.U.: 186, Great Portland Street, W.
Oakland: 136, Long Acre, W.C.
Opel: 5, Halkin Street, S.W.
Victoria 3238. "Oppidulum, London."
Oryx: 16, Wigmore Street, W.
Overland: 19–21, Heddon St., Regent St., "Angammotor, London." [W.
Gerrard 6383.
Owen: Basinghall Street, E.C.
Palladium: 378, Euston Road, N.W.
Panhard: 14, Regent Street.
Pathfinder: 12, Heddon St., W.
Pearson-Cox: Shortlands, S.E.
Peugeot: 10, Brompton Road, S.W.
Phanomobile: 328, Upper Street, N.
Phoenix: 114, Gt. Portland Street, W.
Piccard: 29a, Gillingham Street, S.W.
Pick: Carlton House, Regent St., W.
Pilain: 74, Shaftesbury Avenue, W.
Pilgrim: Farnham, Surrey.
Pilot: 21A, Loudoun Road, N.W.
Ponette: 19, Brick Street, W.
Porthos: 12, Upper St. Martin's Lane, W.C.
Rapid: 366, Euston Road, N.W.
R.C.H.: 85, Great Portland Street, W.
Renault: 21, Pall Mall, S.W.
Riley: City Works, Coventry.
R.M.C.: 57, Great Eastern Street, E.C.
Rochet: 124, Shaftesbury Avenue, W.C.
Rolls-Royce, Ltd., 14, Conduit St., W.
Rothwell: 14, Mortimer Street, Regent Street, W.

ROVER

Rover Company, Ltd.,
Coventry.
"Rover, Coventry."
Coventry 518 (5 lines).
London:—
Rover Company, Ltd.,
59–61, New Oxford Street, W.C.
"Roverdom, London."
City 8045.
Standard Models:—

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12	13·9	4	75	130	3	9′ 2″	275
18	—	4	90	130	4	10′ 0″	375

Royal Detroiter, 177, Gt. Portland St.
Salmon: 6, Upper St. Martin's Lane, W.C.
Sava: 34, Old Bond St., W.
S.C.A.R. Cars: 115, Fulham Road, S.W.
Scat: 34, Knightsbridge, S.W.
Schneider: Empire Hse., Piccadilly, W.
Scout: Scout Motors, Salisbury.

SHEFFIELD SIMPLEX

The Sheffield-Simplex Motor Works, Ltd.,
London Showrooms—
20, Conduit St., Bond St., W.
"Shefflex, London." Mayfair 6210.
Works—
Tinsley, nr. Sheffield.
"Simplex, Sheffield."
Attercliffe 109 & 110.
Standard Models. *British.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
25	29·4	6	89	127	3	10′ 6″	600
25	29·4	6	89	127	3	11′ 3″	625
30	29·4	6	89	127	4	12′ 0″	695
45	48·6	6	114	114	2	11′ 3″	750
45	48·6	6	114	114	2	12′ 3″	800
45	48·6	6	114	114	3	12′ 0″	835

Singer: 48A, Palace Street, S.W.
Sirron: 6, Gt. Marlborough St., W.

SIZAIRE

* Charles Jarrott & Letts, Ltd.,
45, Gt. Marlborough Street, W.
"Jemidar, London."
Gerrard 2362.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
9	—	1	120	120	3	7′ 6″	175*
15	—	4	70	170	3	9′ 10″	270†

* Complete car with two-seater body.
† Without tyres.

S.P.A.: Thos. Green, Leeds.
Sperber: Caxton House, Westminster.
Springuel: 18, Berkeley Street, W.
Spyker: 97, Long Acre, W.C.
Standard: 1, Albany Street, N.W.
Stanley: Ashtead, Surrey.

STAR

Star Engineering Co., Ltd.,
Wolverhampton.
"Motor, Wolverhampton."
London Depôt and Showrooms:—
The Star Motor Agency, Ltd.,
24, 25, 26, Long Acre, W.C.
"Stargazing, London."
Standard Models. *British.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
10–12	15·9	4	80	120	3	8′ 4″	215
12–15	15·9	4	80	120	4	9′ 4½″	265
15·9	15·9	4	80	150	4	10′ 3″	300
20·1	20·1	4	90	150	4	10′ 3″	350
23	23·8	6	80	120	4	10′ 6″	375

Stella: 36, New Street, Ashford.
Stoddard: 212, Gt. Portland Street, W.

STOEWER

* Stoewers (London) Ltd.,
18, Brompton Road, S.W.
"Emibersto, London."
Ken. 4260.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
—	13·9	4	75	88	4	8′ 6″	220
—	15·9	4	80	120	4	9′ 10″	335*
—	30 0	4	110	130	4	10′ 9″	575†

* Includes Rudge-Whitworth detachable wheels and 820 × 120 tyres.
† Includes Rudge-Whitworth detachable wheels and 880 × 120 tyres.

Straker-Squire: 75, Shaftesbury Ave., W.C.
Studebaker: 143, Gt. Portland Street.

SUNBEAM:
Wolverhampton, England.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–16	15·9	4	80	150	4	9′ 9″	350
16–20	20·1	4	90	160	4	10′ 3½″	460
25–30	30·1	6	90	160	4	11′ 2″	585

Swift: 15–16, Holborn Viaduct, E.C.

TALBOT

* Clement Talbot, Ltd.,
Barlby Rd., Ladbroke Grove, W.
"Clemtal, London."
Paddington 5006.
Standard Models. *British.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12	15·8	4	80	120	4	9′ 4″	350
						10′ 0″	365
15	20·1	4	90	140	4	9′ 11″	425
						10′ 7″	440
20	23·8	6	80	120	4	10′ 4″	565
						11′ 0″	580
25	25·6	4	101·5	140	4	9′ 11″	515
						10′ 7″	530

Thornycroft: Caxton House, Westminster, S.W.
Turcat Mery: Page Street, Westminster, S.W.
Turicum: 6, Lonsdale Road, N.W.
Turner: 76, York St., Westminster, S.W.
Unic: 18, Brewer Street, S.W.
Victoria 2697. "Autounic, London."
Vauxhall: 180, Gt. Portland Street, W.
Vermorel: 14, Mortimer St., Regent St., W.

VINOT

Vinot Cars, Ltd.,
147, Great Portland St., W.
"Vinot, London."
Gerrard 6760.
Standard Models.

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£
12–14	12·1	4	70	110	3	8′ 7″	295†
						9′ 0″	335‡
15–20	15·9	4	80	130	3	9′ 10″	330
25–30	25·3	4	101	130	3	10′ 0″	460

† Complete two-seater.
‡ Complete four-seater.

Vivinus: 15, New Bond Street, W.

Private purchasers can consult the Technical Editor free of charge, by letter to the "Auto" Office, 44, St. Martin's Lane, W.C.

The "Auto" Directory is published every week. For advertisement rates, address the Manager, 44, St. Martin's Lane, W.C. Telephone—Gerrard 1828. Telegraphic Address—"Truditur, London."

If something you want is not advertised in the "Auto" Directory, enquire of the Manager, 44, St. Martin's Lane, W.C. Information and advice free to prospective purchasers. Telephone—Gerrard 1828.

WOLSELEY

* Wolseley Tool & Motor Co., Ltd.,
York Street, Westminster, S.W.
"Autovent, London."
Victoria 831.
Repair Works:
Gatliff Rd., Commercial Rd., S.W
"Wolseleyan, London."
Victoria 2655.
Works:
Adderley Park, Birmingham.
"Exactitude, Birmingham."
Birmingham Central 6153.
Standard Models: *British.*

H.P.	R.A.C.	CYL	B	S	SP	WH-B	£*
16–20	20·3	4	3 1/16″	4 1/16″	4	10′ 3″	460†
						10′ 9″	600‡
24–30	30·4	6	3 5/16″	5 1/16″	4	10′ 11″	675†
						11′ 5″	800‡
50	48·6	6	4½″	5 1/16″	3	11′ 9″	1100†
						12′ 3″	1225‡

* Complete car. † Open car.
‡ Landaulette.

Vulcan: 166, Gt. Portland St., W.
Warren: McCurds, Store Street, W.
Waverley: 115, Gt. Portland Street, W.
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62	2·38	9·5	14·3
63	2·46	9·8	14·8
64	2·54	10·2	15·2
65	2·61	10·4	15·7
66	2·70	10·8	16·2
67	2.78	11·1	16·7
68	2·87	11·5	17·2
69	2·95	11·8	17·7
70	3·04	12·1	18·2
71	3·12	12·5	18·7
72	3·21	12·8	19·3
73	3·30	13·2	19·8
74	3·39	13·6	20·3
75	3·49	13·96	20·9
76	3·58	14·3	21·5
77	3·67	14·7	22·0
78	3·77	15·1	22·6
79	3·87	15·5	23·2
80	3·97	15·9	23·8
81	4·07	16·3	24·4
82	4·17	16·7	25·0
92	5·25	21·0	31·5
93	5·36	21·4	32·2
94	5·48	21·9	32·9
95	5·59	22·4	33·5
96	5·71	22·8	34·3
97	5·83	23·3	34·98
98	5·95	23·8	35·7
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30·2	119·40	34·2	105·26
30·4	118·42	34·4	104·65
30·6	117·64	34·6	104·04
30·8	116·88	34·8	103·44
31	116·22	35	102·85
31·2	115·38	35·2	102·26
31·4	114·64	35·4	101·69
31·6	113·81	35·6	101·12
31·8	113·21	35·8	100·56
32	112·52	36	100·00
32·2	111·80	36·2	99·44
32·4	111·10	36·4	98·90
32·6	110·42	36·6	98·36
32·8	109·75	36·8	97·82
33	109·08	37	97·30
33·2	108·43	37·2	96·77
33·4	107·78	37·4	96·26
33·6	107·14	37·6	95·74
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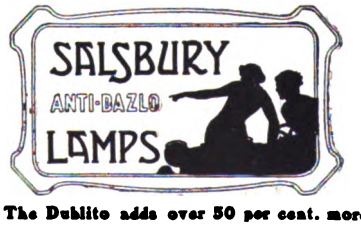
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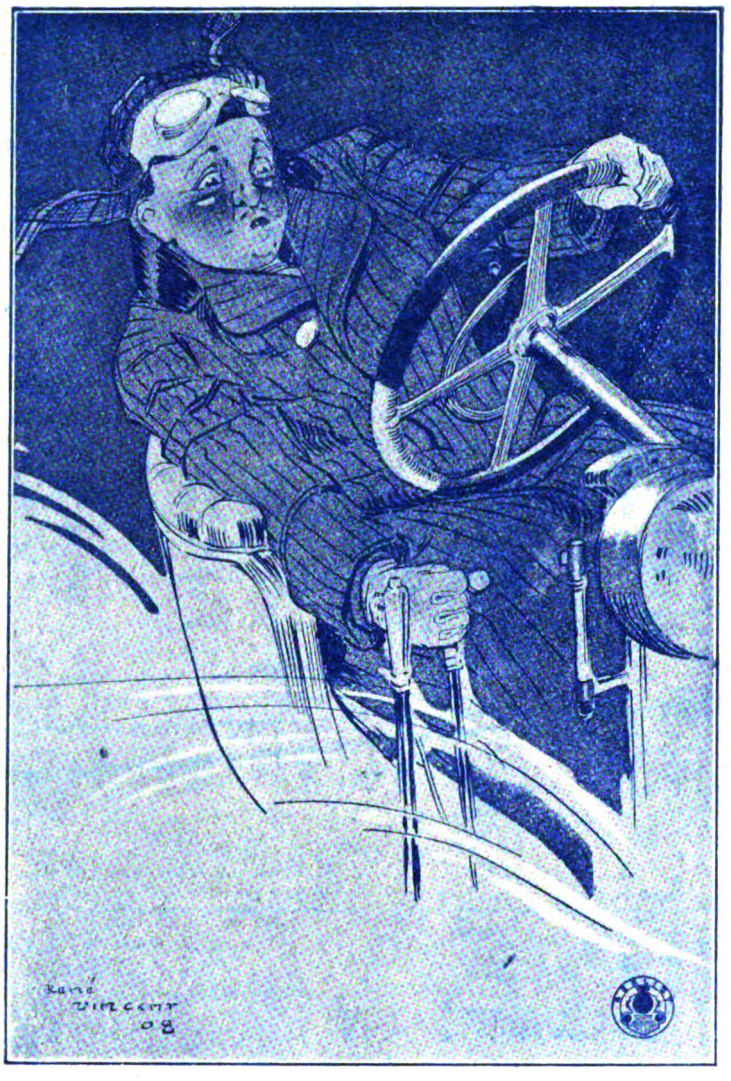
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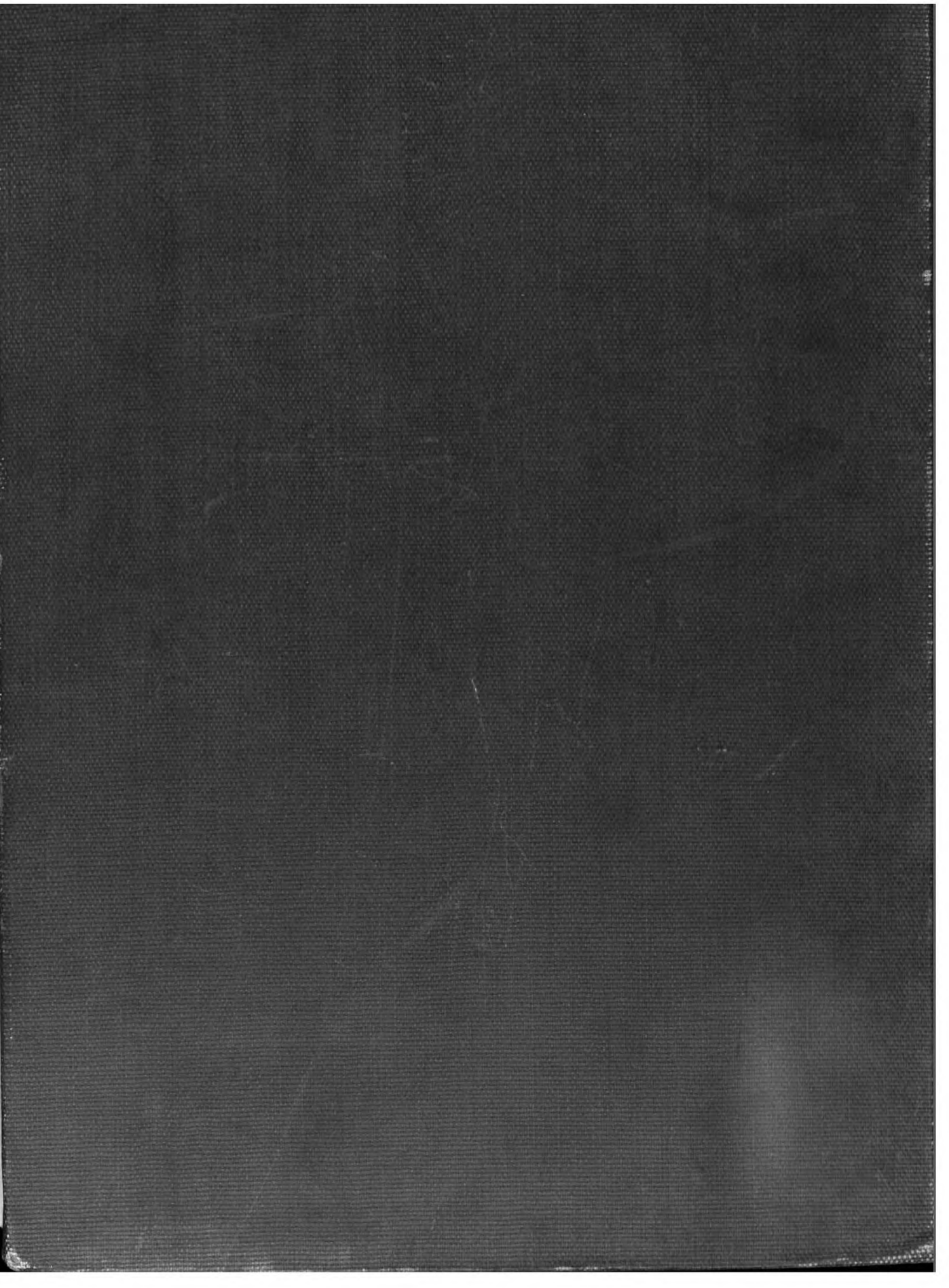
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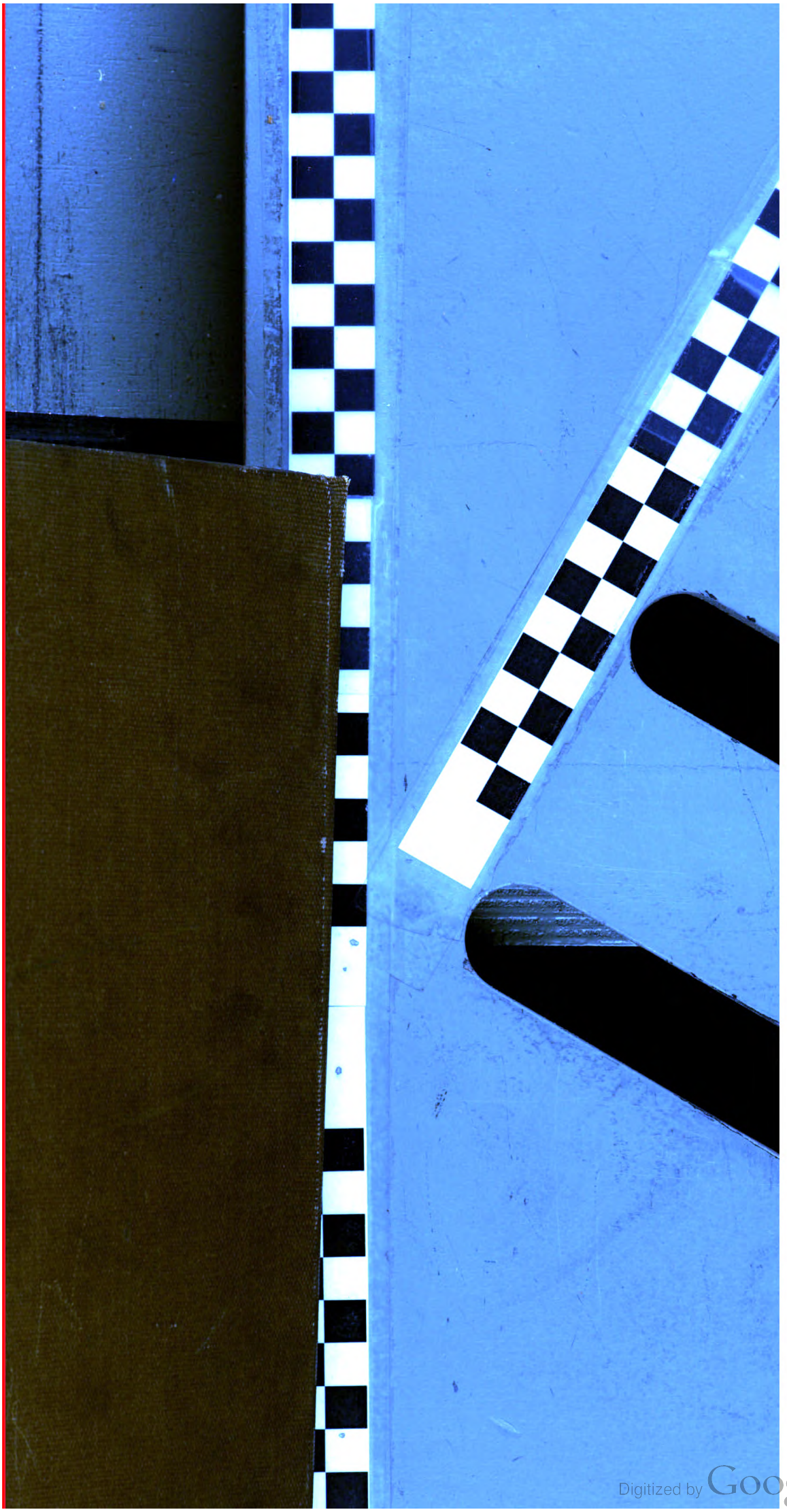
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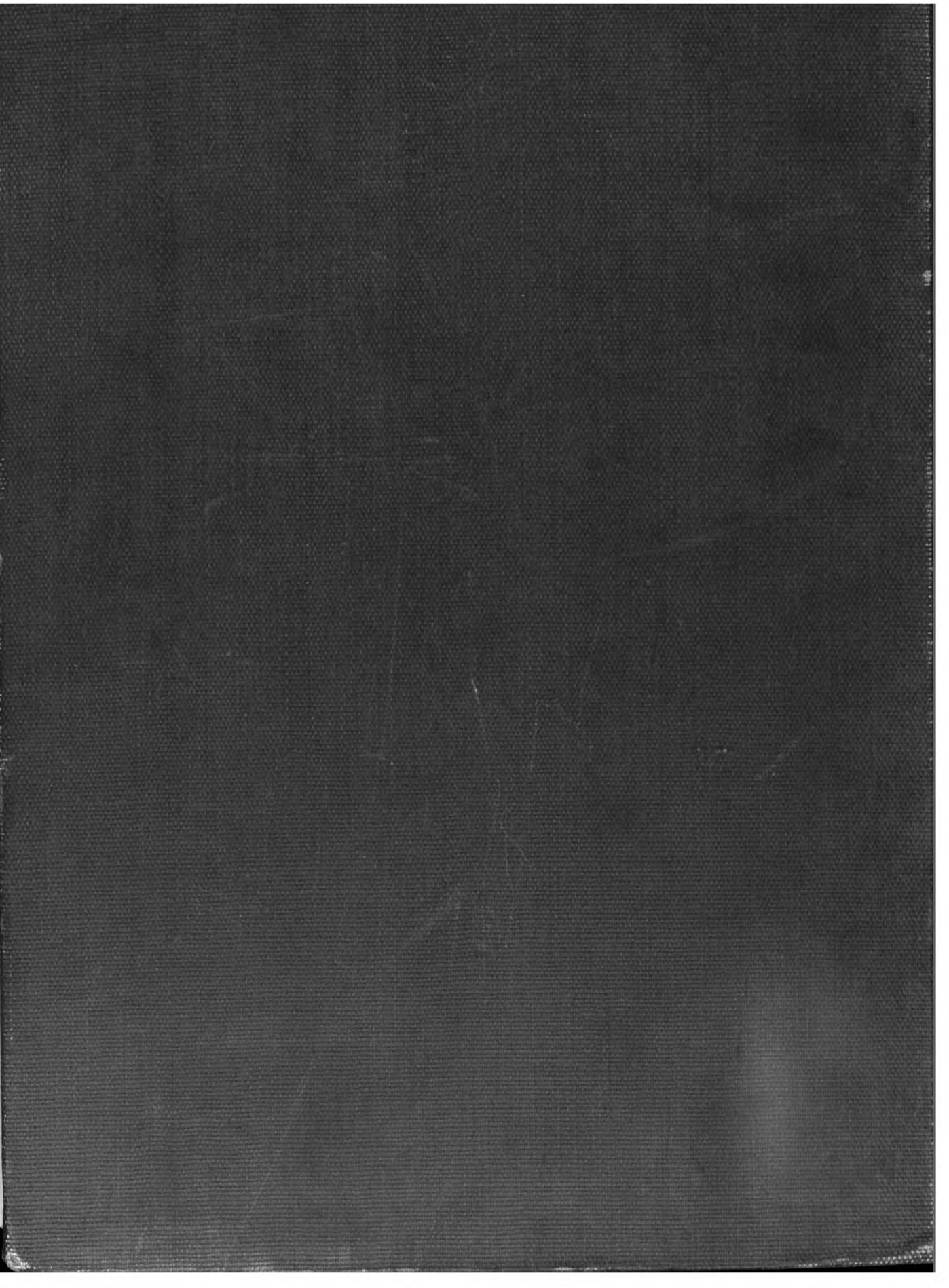
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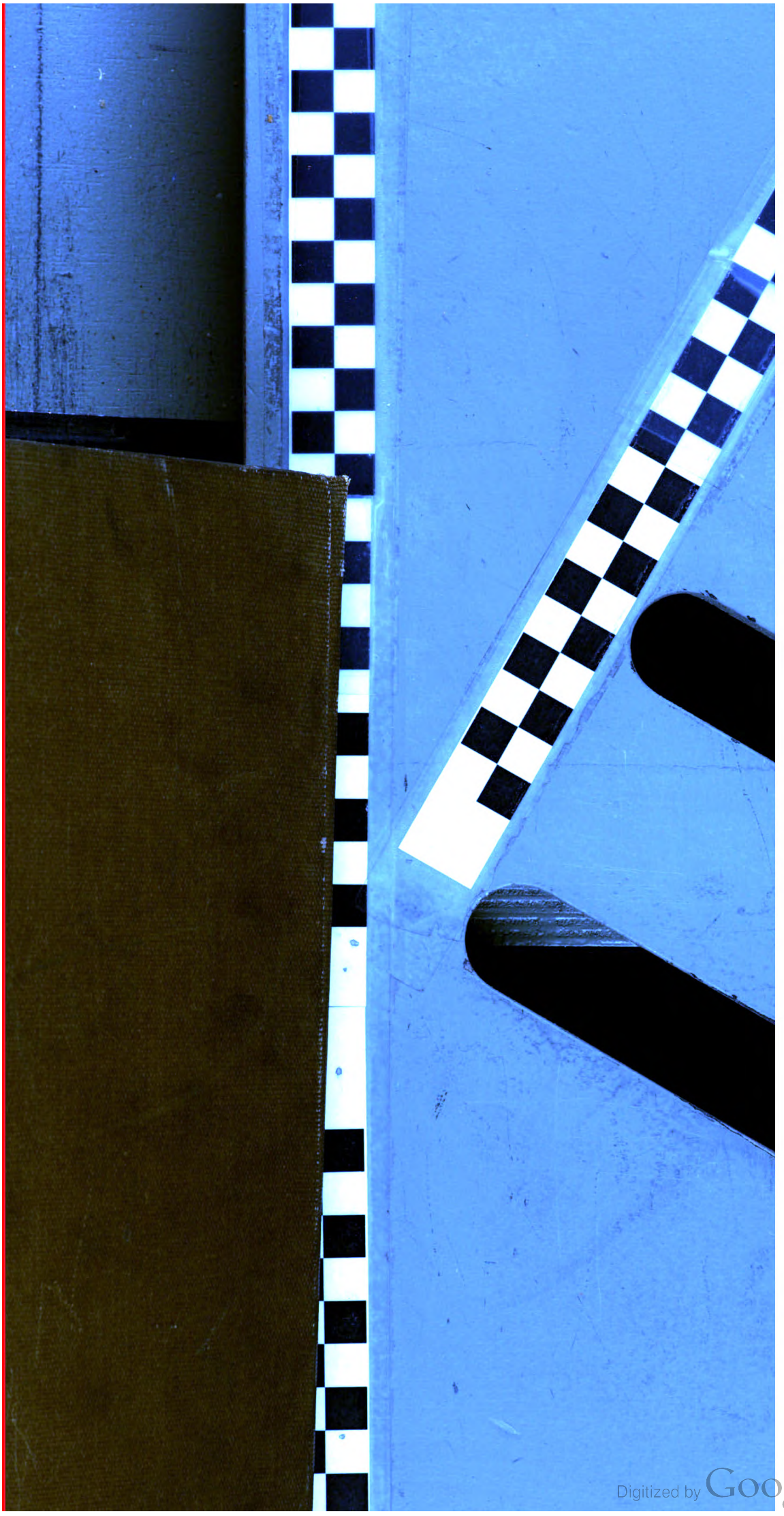


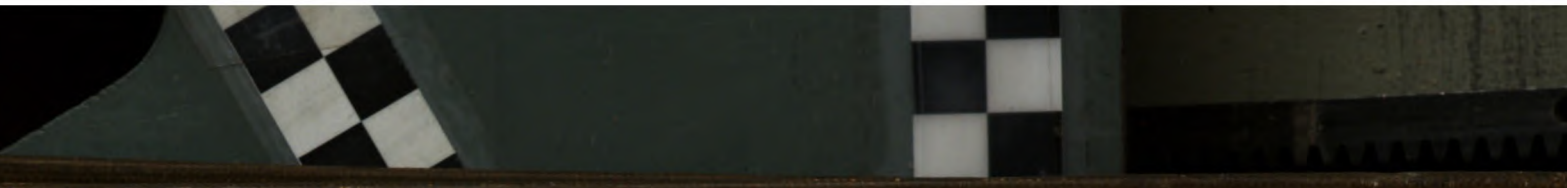
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